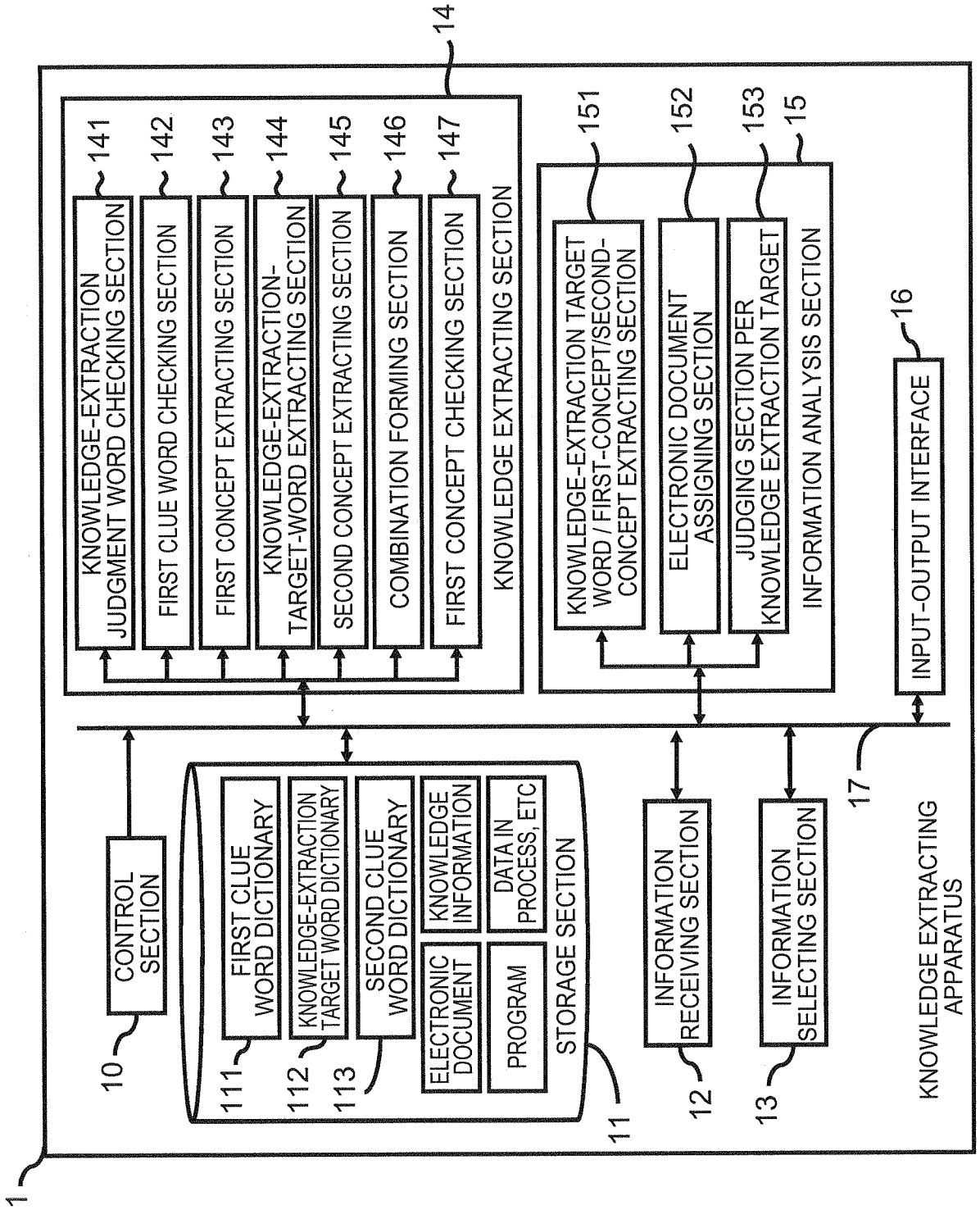

1
14
KNOWLEDGE EXTRACTING SECTION
141
KNOWLEDGE-EXTRACTION JUDGMENT WORD CHECKING SECTION
142
FIRST CLUE WORD CHECKING SECTION
143
FIRST CONCEPT EXTRACTING SECTION
144
KNOWLEDGE-EXTRACTION-TARGET-WORD EXTRACTING SECTION
145
SECOND CONCEPT EXTRACTING SECTION
146
COMBINATION FORMING SECTION
147
FIRST CONCEPT CHECKING SECTION
15
INFORMATION ANALYSIS SECTION
151
KNOWLEDGE-EXTRACTION TARGET WORD / FIRST-CONCEPT/SECOND-CONCEPT EXTRACTING SECTION
152
ELECTRONIC DOCUMENT ASSIGNING SECTION
153
JUDGING SECTION PER KNOWLEDGE EXTRACTION TARGET
16
INPUT-OUTPUT INTERFACE
17
10
CONTROL SECTION
11
STORAGE SECTION
111
FIRST CLUE WORD DICTIONARY
112
KNOWLEDGE-EXTRACTION TARGET WORD DICTIONARY
113
SECOND CLUE WORD DICTIONARY
KNOWLEDGE INFORMATION
DATA IN PROCESS, ETC
ELECTRONIC DOCUMENT
PROGRAM
12
INFORMATION RECEIVING SECTION
13
INFORMATION SELECTING SECTION
KNOWLEDGE EXTRACTING APPARATUS

FIG. 1

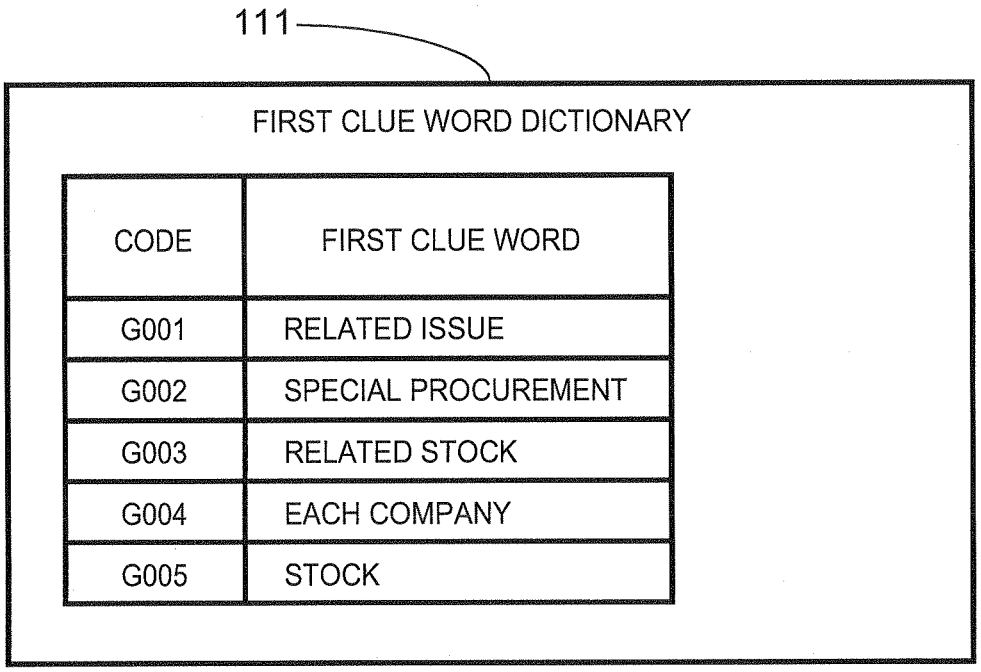

111
FIRST CLUE WORD DICTIONARY
CODE
FIRST CLUE WORD
G001
RELATED ISSUE
G002
SPECIAL PROCUREMENT
G003
RELATED STOCK
G004
EACH COMPANY
G005
STOCK

FIG. 2

112

KNOWLEDGE-EXTRACTION TARGET WORD DICTIONARY

SECURITIES CODE	KNOWLEDGE-EXTRACTION TARGET WORD (COMPANY NAME)	INDUSTRIAL CATEGORY 1 ON TOKYO STOCK EXCHANGE (LARGE CLASSIFICATION)	INDUSTRIAL CATEGORY 2 ON TOKYO STOCK EXCHANGE (SMALL CLASSIFICATION)	KNOWLEDGE-EXTRACTION TARGET NAME EXPRESSION (COMPANY NAME EXPRESSION)
1031	RR BOU	MANUFACTURING INDUSTRY	TEXTILE GOODS	RR BOU
1035	zz BOU CO., LTD	MANUFACTURING INDUSTRY	TEXTILE GOODS	zz BOU
1045	IROHANI PHARMACEUTICAL INDUSTRY CO., LTD.	MANUFACTURING INDUSTRY	MEDICAL PRODUCT	IROHANI
1045	IROHANI PHARMACEUTICAL INDUSTRY CO., LTD.	MANUFACTURING INDUSTRY	MEDICAL PRODUCT	IROHANI PHARMA
1045	IROHANI PHARMACEUTICAL INDUSTRY CO., LTD.	MANUFACTURING INDUSTRY	MEDICAL PRODUCT	IROHANI PHARMACEUTICAL
1045	IROHANI PHARMACEUTICAL INDUSTRY CO., LTD.	MANUFACTURING INDUSTRY	MEDICAL PRODUCT	IROHANI PHARMACEUTICAL INDUSTRY
1042	ff PHARMACEUTICAL CO., LTD.	MANUFACTURING INDUSTRY	MEDICAL PRODUCT	ff PHARMACEUTICAL
1041	HOHETO MEDICALS CO., LTD.	MANUFACTURING INDUSTRY	MEDICAL PRODUCT	HOHETO MEDICALS
1033	yy BOU HOLDINGS CO., LTD.	TRADE	WHOLESALE	yy BO HD
1033	yy BOU HOLDINGS CO., LTD.	TRADE	WHOLESALE	yy BOU
1033	yy BOU HOLDINGS CO., LTD.	TRADE	WHOLESALE	yy BOU HD
1033	yy BOU HOLDINGS CO., LTD.	TRADE	WHOLESALE	yy BOU HOLDINGS

FIG. 3

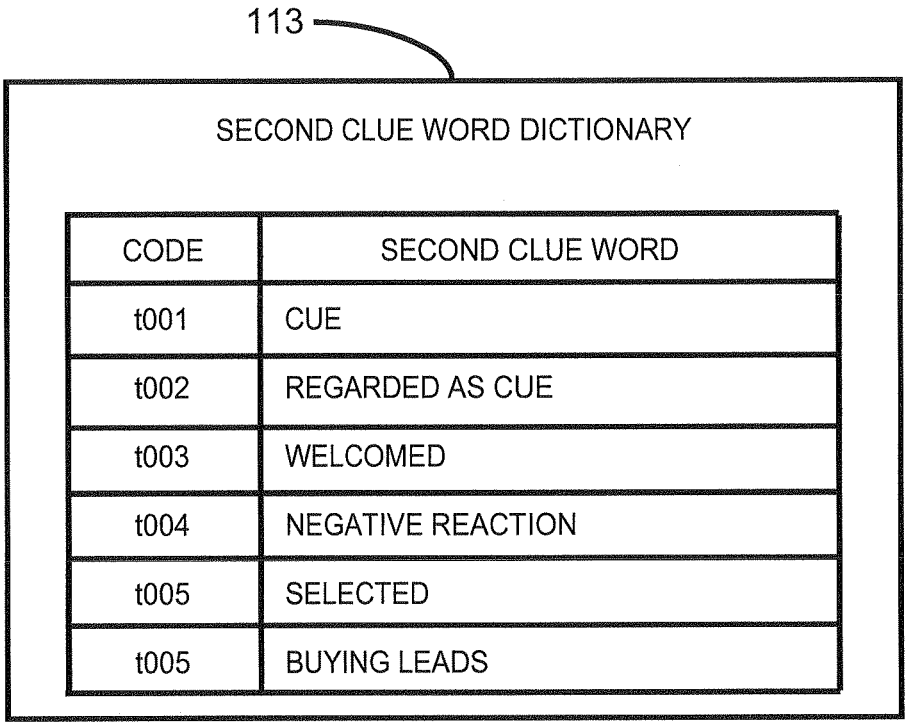
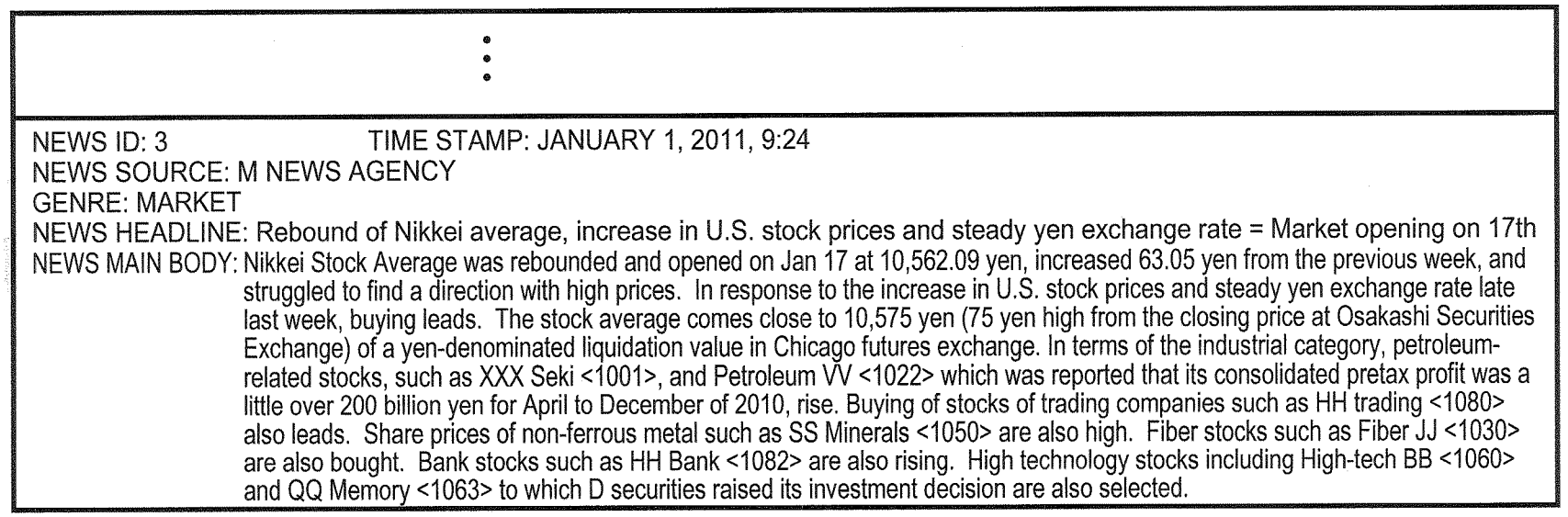

113
SECOND CLUE WORD DICTIONARY
CODE
SECOND CLUE WORD
t001
CUE
t002
REGARDED AS CUE
t003
WELCOMED
t004
NEGATIVE REACTION
t005
SELECTED
t005
BUYING LEADS

FIG. 4

NEWS ID: 1 TIME STAMP: OCTOBER 21, 2010, 11:08
NEWS SOURCE: X NEWS AGENCY
GENRE: ECONOMY
NEWS HEADING: "Group infection of new influenza in student dormitory in A prefecture, related issues remained steady"
NEWS MAIN BODY: Influenza-related issues including RR bou <1031>, yy bo HD <1033>, and Hoheto medicals <1041> are ranked. It seems to be a cue that A prefecture announced that a group infection of new influenza was caused in a student dormitory in X city. As a result of genetic tests of 12 men and women, they were found to be infected by a new influenza type

NEWS ID: 2 TIME STAMP: NOVEMBER 6, 2010, 18:13
NEWS SOURCE: S NEWSPAPER COMPANY
GENRE: SOCIETY
NEWS HEADLINE: Group infection of influenza in hospital, six patients died. Hospital in B City of B prefecture
NEWS MAIN BODY: B prefecture announced, on Nov 6, that a group infection of influenza was caused in a hospital in B city, and six men and women between the ages of sixty to ninety in the hospital died from Oct 31 to Nov 5. This is believed to be caused by Hong Kong type A influenza. 33 people including staffs and patients complain their symptoms as of November 5, but they are allegedly not in a serious condition. A man in his 80s died on 6th of this month, but he tested negative for the influenza. The prefecture does not announce the hospital name. According to the prefecture, the hospital reported to M public health center that "49 patients complain influenza-like symptoms" on 2nd of this month, and instructed to isolate people with suspicious of infection. An on-site inspection was allegedly conducted on 4th and 5th of this month. However, a man in his 80s died on 31st of last month, followed by three people including a man in his 90s, a man in his 60s, and a woman in her 70s on Nov 2, a woman in her 80s on Nov 4, and a man in his 80s on Nov 5. They all tested positive for the influenza. The health welfare division of the prefecture said, "we gave instructions to the hospital through the public health center, and the hospital followed the instructions. We found no fault in particular."

FIG. 5



NEWS ID: 3 TIME STAMP: JANUARY 1, 2011, 9:24
NEWS SOURCE: M NEWS AGENCY
GENRE: MARKET
NEWS HEADLINE: Rebound of Nikkei average, increase in U.S. stock prices and steady yen exchange rate = Market opening on 17th
NEWS MAIN BODY: Nikkei Stock Average was rebounded and opened on Jan 17 at 10,562.09 yen, increased 63.05 yen from the previous week, and struggled to find a direction with high prices. In response to the increase in U.S. stock prices and steady yen exchange rate late last week, buying leads. The stock average comes close to 10,575 yen (75 yen high from the closing price at Osakashi Securities Exchange) of a yen-denominated liquidation value in Chicago futures exchange. In terms of the industrial category, petroleum-related stocks, such as XXX Seki <1001>, and Petroleum VV <1022> which was reported that its consolidated pretax profit was a little over 200 billion yen for April to December of 2010, rise. Buying of stocks of trading companies such as HH trading <1080> also leads. Share prices of non-ferrous metal such as SS Minerals <1050> are also high. Fiber stocks such as Fiber JJ <1030> are also bought. Bank stocks such as HH Bank <1082> are also rising. High technology stocks including High-tech BB <1060> and QQ Memory <1063> to which D securities raised its investment decision are also selected.

FIG. 6

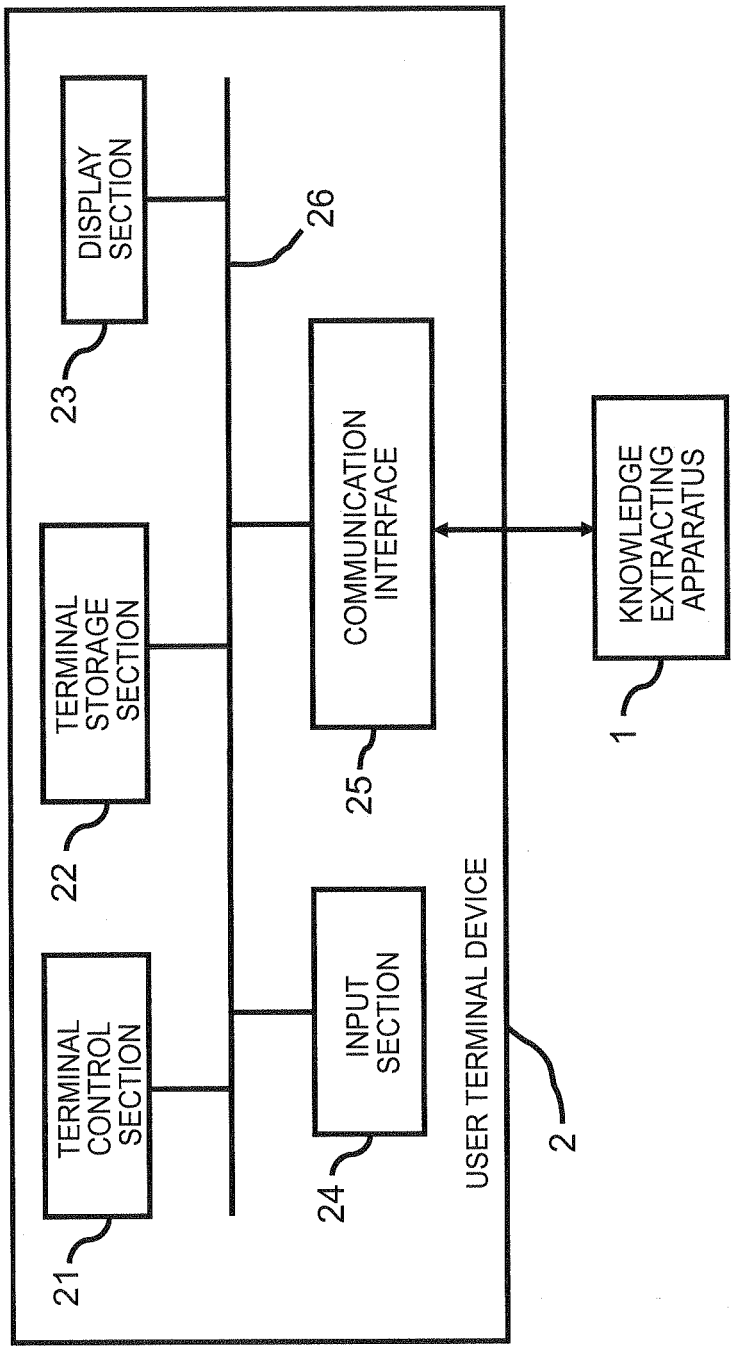

USER TERMINAL DEVICE
2
DISPLAY SECTION
23
TERMINAL STORAGE SECTION
22
TERMINAL CONTROL SECTION
21
INPUT SECTION
24
COMMUNICATION INTERFACE
25
26
KNOWLEDGE EXTRACTING APPARATUS
1

FIG. 7

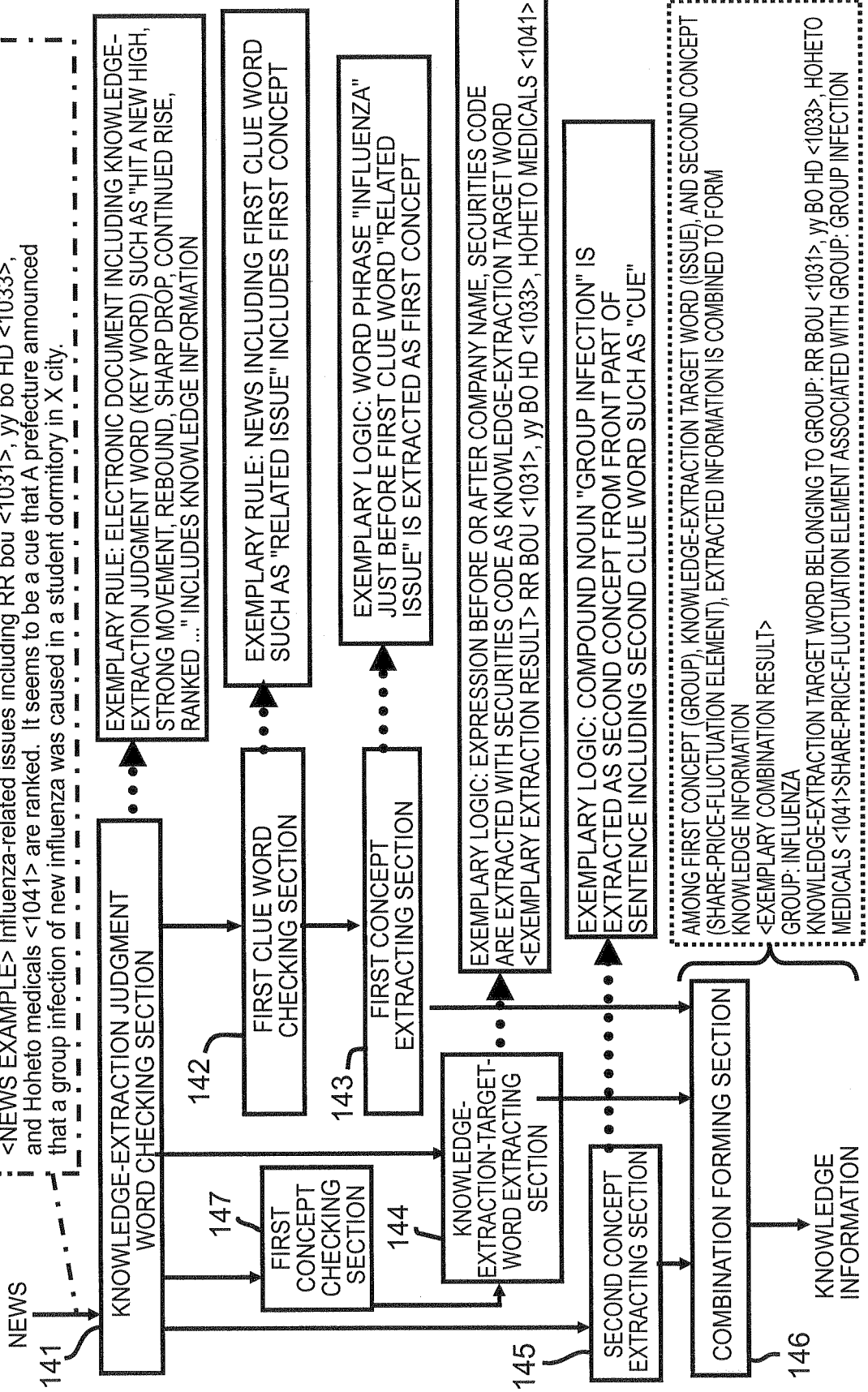

<NEWS EXAMPLE> Influenza-related issues including RR bou <1031>, yy bo HD <1033>, and Hoheto medicals <1041> are ranked. It seems to be a cue that A prefecture announced that a group infection of new influenza was caused in a student dormitory in X city.
NEWS
141
KNOWLEDGE-EXTRACTION JUDGMENT WORD CHECKING SECTION
EXEMPLARY RULE: ELECTRONIC DOCUMENT INCLUDING KNOWLEDGE-EXTRACTION JUDGMENT WORD (KEY WORD) SUCH AS "HIT A NEW HIGH, STRONG MOVEMENT, REBOUND, SHARP DROP, CONTINUED RISE, RANKED ..." INCLUDES KNOWLEDGE INFORMATION
142
FIRST CLUE WORD CHECKING SECTION
EXEMPLARY RULE: NEWS INCLUDING FIRST CLUE WORD SUCH AS "RELATED ISSUE" INCLUDES FIRST CONCEPT
143
FIRST CONCEPT EXTRACTING SECTION
EXEMPLARY LOGIC: WORD PHRASE "INFLUENZA" JUST BEFORE FIRST CLUE WORD "RELATED ISSUE" IS EXTRACTED AS FIRST CONCEPT
147
FIRST CONCEPT CHECKING SECTION
144
KNOWLEDGE-EXTRACTION-TARGET-WORD EXTRACTING SECTION
EXEMPLARY LOGIC: EXPRESSION BEFORE OR AFTER COMPANY NAME, SECURITIES CODE ARE EXTRACTED WITH SECURITIES CODE AS KNOWLEDGE-EXTRACTION TARGET WORD <EXEMPLARY EXTRACTION RESULT> RR BOU <1031>, yy BO HD <1033>, HOHETO MEDICALS <1041>
145
SECOND CONCEPT EXTRACTING SECTION
EXEMPLARY LOGIC: COMPOUND NOUN "GROUP INFECTION" IS EXTRACTED AS SECOND CONCEPT FROM FRONT PART OF SENTENCE INCLUDING SECOND CLUE WORD SUCH AS "CUE"
COMBINATION FORMING SECTION
146
KNOWLEDGE INFORMATION
AMONG FIRST CONCEPT (GROUP), KNOWLEDGE-EXTRACTION TARGET WORD (ISSUE), AND SECOND CONCEPT (SHARE-PRICE-FLUCTUATION ELEMENT), EXTRACTED INFORMATION IS COMBINED TO FORM KNOWLEDGE INFORMATION
<EXEMPLARY COMBINATION RESULT>
GROUP: INFLUENZA
KNOWLEDGE-EXTRACTION TARGET WORD BELONGING TO GROUP: RR BOU <1031>, yy BO HD <1033>, HOHETO MEDICALS <1041>SHARE-PRICE-FLUCTUATION ELEMENT ASSOCIATED WITH GROUP: GROUP INFECTION

FIG. 8

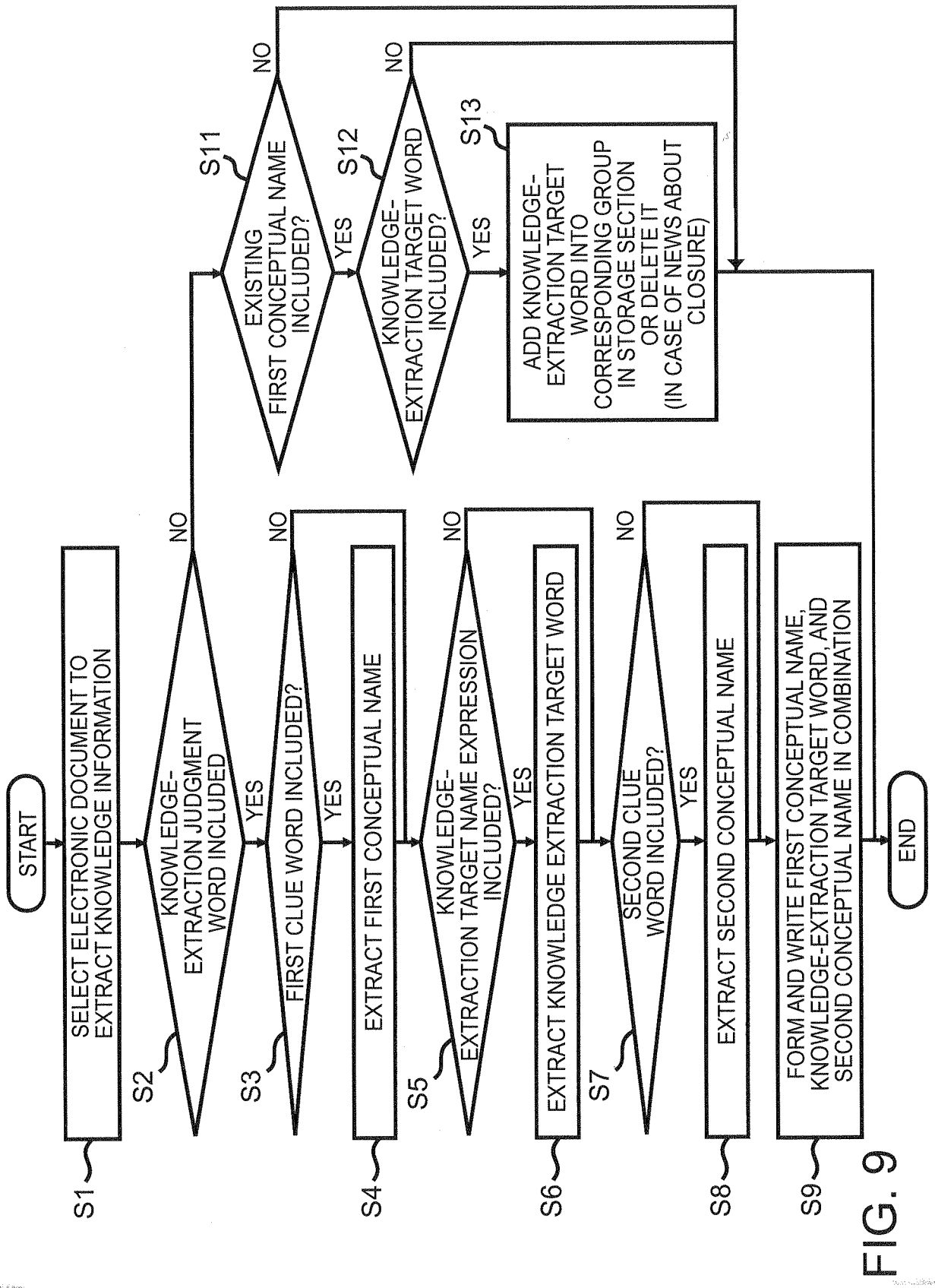

START
SELECT ELECTRONIC DOCUMENT TO EXTRACT KNOWLEDGE INFORMATION
S1
KNOWLEDGE-EXTRACTION JUDGMENT WORD INCLUDED
S2
NO
YES
FIRST CLUE WORD INCLUDED?
S3
NO
YES
EXTRACT FIRST CONCEPTUAL NAME
S4
KNOWLEDGE-EXTRACTION TARGET NAME EXPRESSION INCLUDED?
S5
NO
YES
EXTRACT KNOWLEDGE EXTRACTION TARGET WORD
S6
SECOND CLUE WORD INCLUDED?
S7
NO
YES
EXTRACT SECOND CONCEPTUAL NAME
S8
FORM AND WRITE FIRST CONCEPTUAL NAME, KNOWLEDGE-EXTRACTION TARGET WORD, AND SECOND CONCEPTUAL NAME IN COMBINATION
S9
END
EXISTING FIRST CONCEPTUAL NAME INCLUDED?
S11
NO
YES
KNOWLEDGE-EXTRACTION TARGET WORD INCLUDED?
S12
NO
YES
ADD KNOWLEDGE-EXTRACTION TARGET WORD INTO CORRESPONDING GROUP IN STORAGE SECTION OR DELETE IT (IN CASE OF NEWS ABOUT CLOSURE)
S13

FIG. 9

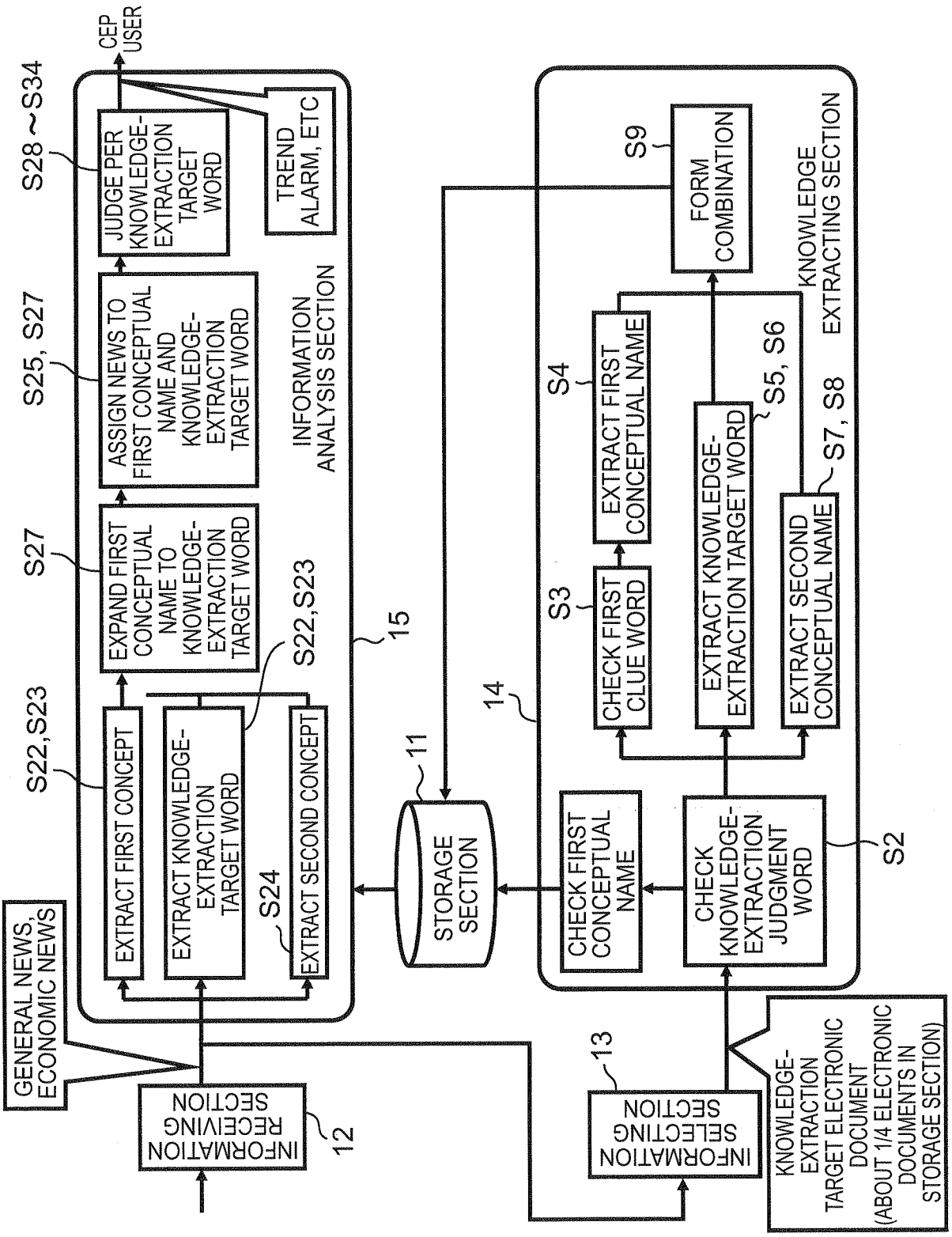

GENERAL NEWS, ECONOMIC NEWS
INFORMATION RECEIVING SECTION
12
INFORMATION ANALYSIS SECTION
EXTRACT FIRST CONCEPT
EXTRACT KNOWLEDGE-EXTRACTION TARGET WORD
EXTRACT SECOND CONCEPT
EXPAND FIRST CONCEPTUAL NAME TO KNOWLEDGE-EXTRACTION TARGET WORD
ASSIGN NEWS TO FIRST CONCEPTUAL NAME AND KNOWLEDGE-EXTRACTION TARGET WORD
JUDGE PER KNOWLEDGE-EXTRACTION TARGET WORD
TREND ALARM, ETC
S22,S23
S24
S22,S23
S27
S25, S27
S28 ~S34
CEP USER
15
STORAGE SECTION
11
14
KNOWLEDGE EXTRACTING SECTION
CHECK FIRST CONCEPTUAL NAME
CHECK KNOWLEDGE-EXTRACTION JUDGMENT WORD
S2
CHECK FIRST CLUE WORD
EXTRACT FIRST CONCEPTUAL NAME
EXTRACT KNOWLEDGE-EXTRACTION TARGET WORD
EXTRACT SECOND CONCEPTUAL NAME
S3
S4
S5, S6
S7, S8
FORM COMBINATION
S9
INFORMATION SELECTING SECTION
13
KNOWLEDGE-EXTRACTION TARGET ELECTRONIC DOCUMENT (ABOUT 1/4 ELECTRONIC DOCUMENTS IN STORAGE SECTION)

FIG. 10

Nikkei Stock Average was rebounded and opened on 17th at 10,562.09 yen, increased 63.05 yen from the previous week, and struggled to find a direction with high prices. In response to the increase in U.S. stock prices and steady yen exchange rate late last week, buying leads. The stock average comes close to 10,575 yen (75 yen high from the closing price at Osakashi Securities Exchange) of a yen-denominated liquidation value in Chicago futures exchange. In terms of the industrial category, petroleum-related stocks, such as XXX Seki <1001>, and Petroleum VV <1002> which was reported that its consolidated pretax profit was a little over 200 billion yen for April to December of 2010, rise. Buying of stocks of trading companies such as HH trading <1080> also leads. Share prices of non-ferrous metal such as SS Minerals <1050> are also high. Fiber stocks such as Fiber JJ <1030> are also bought. Bank stocks such as HH Bank <1082> are also rising. High technology stocks including High-tech BB <1060> and QQ Memory <1063> to which D securities raised its investment decision are also selected.

ELEMENT 1 | GROUP 1 | ISSUE 1 | ISSUE 2 | ELEMENT 2 | GROUP 2 | ISSUE 3 | GROUP 3 | ISSUE 4 | GROUP 4 | ISSUE 5 | GROUP 5 | ISSUE 6 | GROUP 6 | ISSUE 7 | ISSUE 8 | ELEMENT 3

FIG. 11

KNOWLEDGE INFORMATION

KNOWLEDGE NO.	FIRST CONCEPTUAL NAME	KNOWLEDGE-EXTRACTION TARGET WORD (ISSUE)	SECOND CONCEPT (SHARE-PRICE-FLUCTUATION ELEMENT)
1	INFLUENZA	1033 : yy BOU HOLDINGS CO., LTD. 1031 : RR BOU CO., LTD. 1041 : HOHETO MEDICALS CO., LTD.	GROUP INFECTION
2	PETROLEUM	1001 : XXX SEKI CO., LTD. 1002 : PETROLEUM VV HOLDINGS CO., LTD.	CONSOLIDATED PRETAX PROFIT WAS A LITTLE OVER 200 BILLION YEN
3	TRADING COMPANY	1080 : HH TRADING CO., LTD.	
4	NON-FERROUS METAL	1050 : SS MINERALS CO., LTD.	
5	FIBER	1030 : FIBER JJ CO., LTD.	
6	BANK	1082 : HH BANK FINANCIAL GROUP CO., LTD.	
7	HIGH TECHNOLOGY	1060 : HIGH-TECHNIQUE BB CO., LTD. 1063 : QQ MEMORY	RAISED ITS INVESTMENT DECISION

FIG. 12

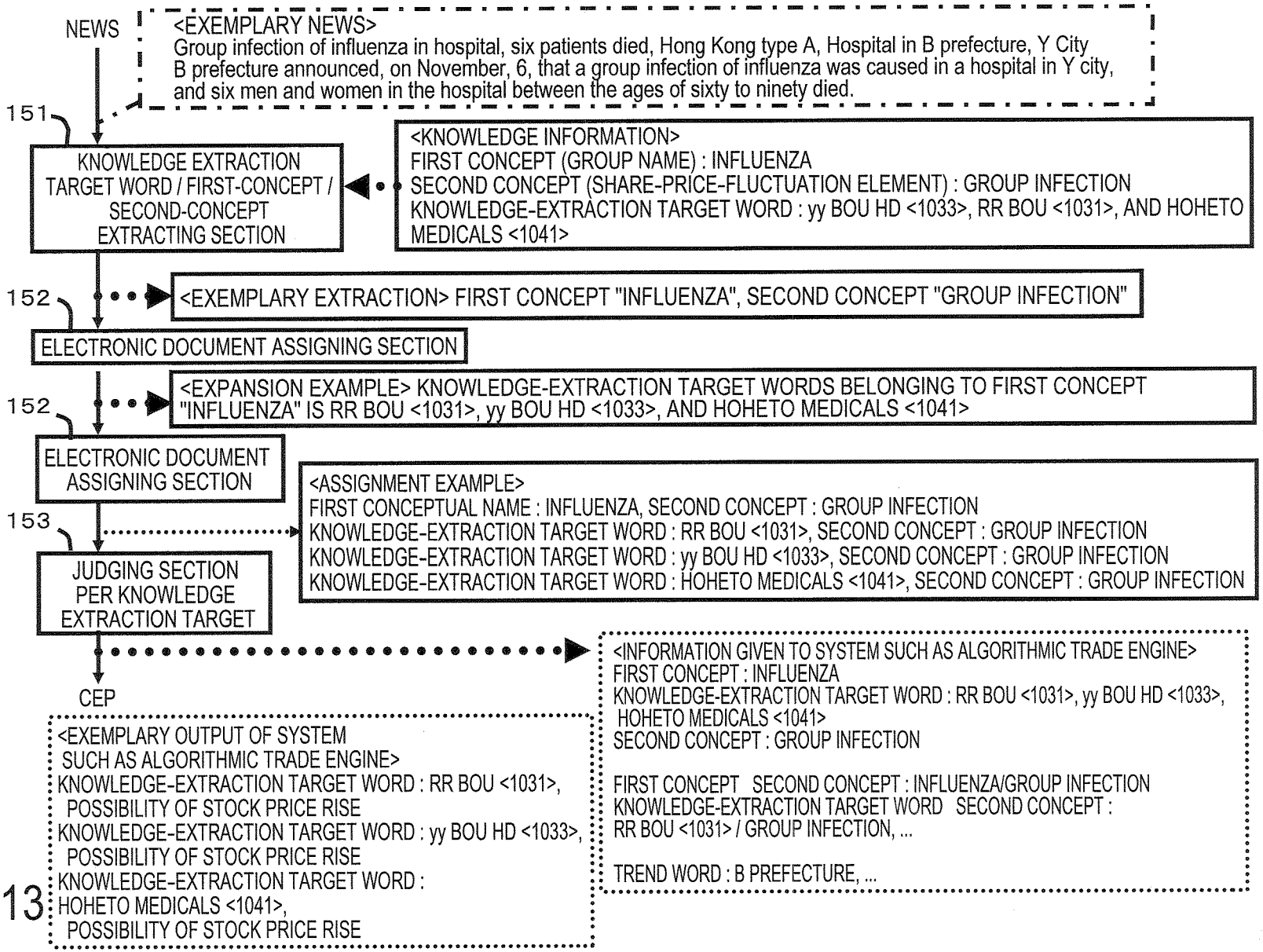

NEWS
<EXEMPLARY NEWS>
Group infection of influenza in hospital, six patients died, Hong Kong type A, Hospital in B prefecture, Y City
B prefecture announced, on November, 6, that a group infection of influenza was caused in a hospital in Y city, and six men and women in the hospital between the ages of sixty to ninety died.
151
KNOWLEDGE EXTRACTION TARGET WORD / FIRST-CONCEPT / SECOND-CONCEPT EXTRACTING SECTION
<KNOWLEDGE INFORMATION>
FIRST CONCEPT (GROUP NAME) : INFLUENZA
SECOND CONCEPT (SHARE-PRICE-FLUCTUATION ELEMENT) : GROUP INFECTION
KNOWLEDGE-EXTRACTION TARGET WORD : yy BOU HD <1033>, RR BOU <1031>, AND HOHETO MEDICALS <1041>
152
<EXEMPLARY EXTRACTION> FIRST CONCEPT "INFLUENZA", SECOND CONCEPT "GROUP INFECTION"
ELECTRONIC DOCUMENT ASSIGNING SECTION
152
<EXPANSION EXAMPLE> KNOWLEDGE-EXTRACTION TARGET WORDS BELONGING TO FIRST CONCEPT "INFLUENZA" IS RR BOU <1031>, yy BOU HD <1033>, AND HOHETO MEDICALS <1041>
ELECTRONIC DOCUMENT ASSIGNING SECTION
153
JUDGING SECTION PER KNOWLEDGE EXTRACTION TARGET
<ASSIGNMENT EXAMPLE>
FIRST CONCEPTUAL NAME : INFLUENZA, SECOND CONCEPT : GROUP INFECTION
KNOWLEDGE-EXTRACTION TARGET WORD : RR BOU <1031>, SECOND CONCEPT : GROUP INFECTION
KNOWLEDGE-EXTRACTION TARGET WORD : yy BOU HD <1033>, SECOND CONCEPT : GROUP INFECTION
KNOWLEDGE-EXTRACTION TARGET WORD : HOHETO MEDICALS <1041>, SECOND CONCEPT : GROUP INFECTION
CEP
<INFORMATION GIVEN TO SYSTEM SUCH AS ALGORITHMIC TRADE ENGINE>
FIRST CONCEPT : INFLUENZA
KNOWLEDGE-EXTRACTION TARGET WORD : RR BOU <1031>, yy BOU HD <1033>, HOHETO MEDICALS <1041>
SECOND CONCEPT : GROUP INFECTION
FIRST CONCEPT SECOND CONCEPT : INFLUENZA/GROUP INFECTION
KNOWLEDGE-EXTRACTION TARGET WORD SECOND CONCEPT : RR BOU <1031> / GROUP INFECTION, ...
TREND WORD : B PREFECTURE, ...
<EXEMPLARY OUTPUT OF SYSTEM SUCH AS ALGORITHMIC TRADE ENGINE>
KNOWLEDGE-EXTRACTION TARGET WORD : RR BOU <1031>, POSSIBILITY OF STOCK PRICE RISE
KNOWLEDGE-EXTRACTION TARGET WORD : yy BOU HD <1033>, POSSIBILITY OF STOCK PRICE RISE
KNOWLEDGE-EXTRACTION TARGET WORD : HOHETO MEDICALS <1041>, POSSIBILITY OF STOCK PRICE RISE

FIG. 13

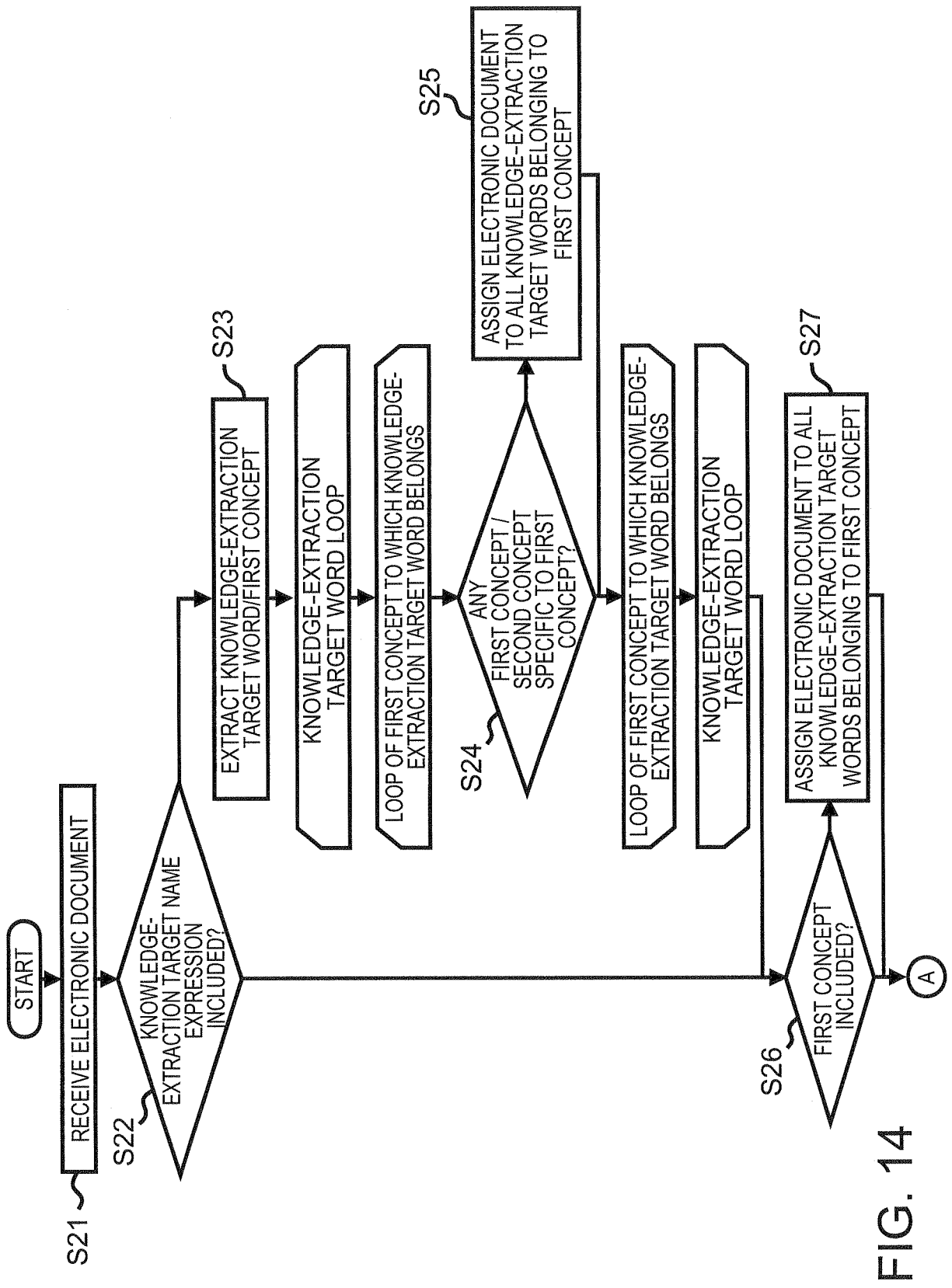

START
RECEIVE ELECTRONIC DOCUMENT
S21
KNOWLEDGE-EXTRACTION TARGET NAME EXPRESSION INCLUDED?
S22
EXTRACT KNOWLEDGE-EXTRACTION TARGET WORD/FIRST CONCEPT
S23
KNOWLEDGE-EXTRACTION TARGET WORD LOOP
LOOP OF FIRST CONCEPT TO WHICH KNOWLEDGE-EXTRACTION TARGET WORD BELONGS
ANY FIRST CONCEPT / SECOND CONCEPT SPECIFIC TO FIRST CONCEPT?
S24
ASSIGN ELECTRONIC DOCUMENT TO ALL KNOWLEDGE-EXTRACTION TARGET WORDS BELONGING TO FIRST CONCEPT
S25
LOOP OF FIRST CONCEPT TO WHICH KNOWLEDGE-EXTRACTION TARGET WORD BELONGS
KNOWLEDGE-EXTRACTION TARGET WORD LOOP
FIRST CONCEPT INCLUDED?
S26
ASSIGN ELECTRONIC DOCUMENT TO ALL KNOWLEDGE-EXTRACTION TARGET WORDS BELONGING TO FIRST CONCEPT
S27
A

FIG. 14

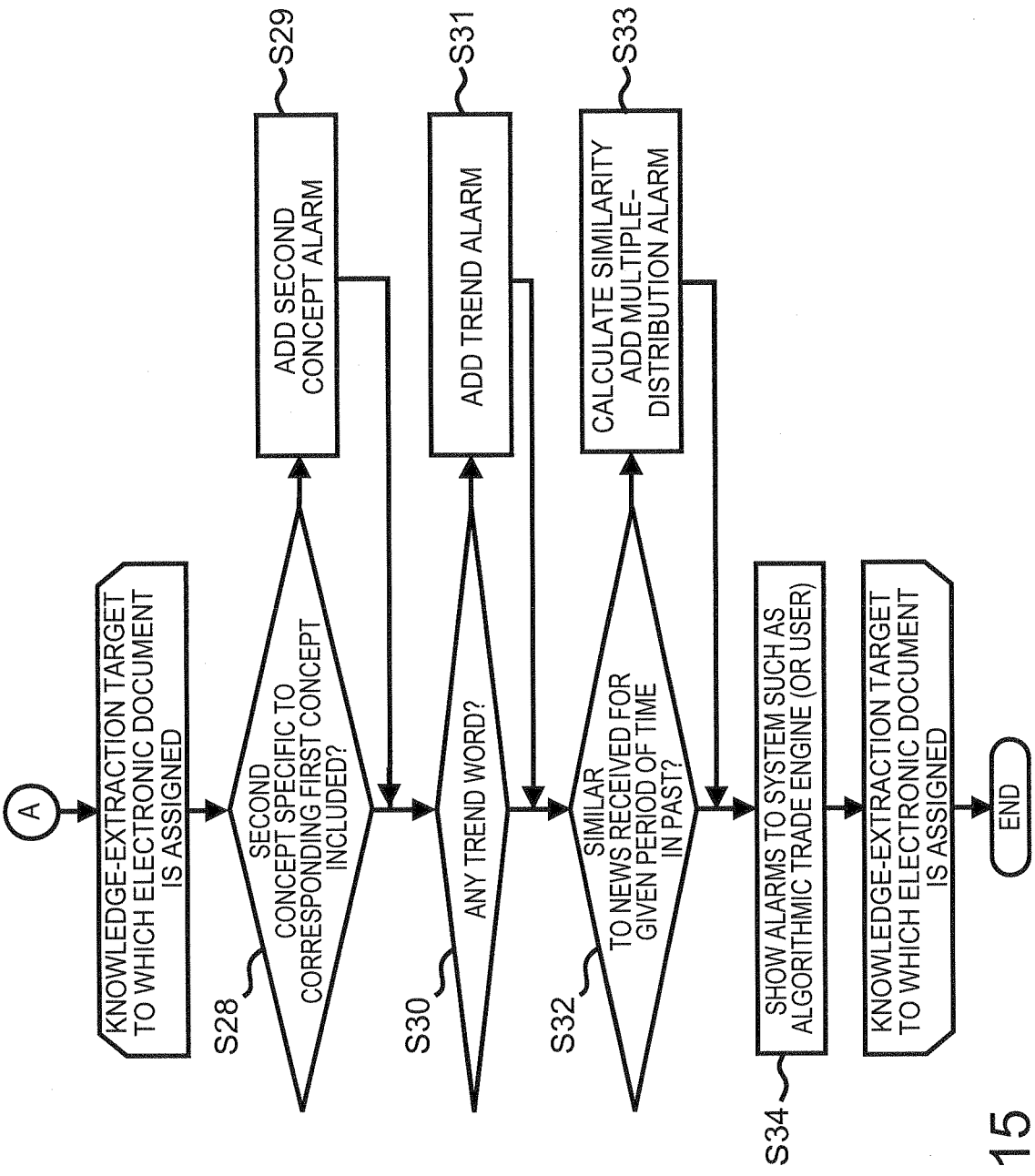

A
KNOWLEDGE-EXTRACTION TARGET TO WHICH ELECTRONIC DOCUMENT IS ASSIGNED
S28
SECOND CONCEPT SPECIFIC TO CORRESPONDING FIRST CONCEPT INCLUDED?
S29
ADD SECOND CONCEPT ALARM
S30
ANY TREND WORD?
S31
ADD TREND ALARM
S32
SIMILAR TO NEWS RECEIVED FOR GIVEN PERIOD OF TIME IN PAST?
S33
CALCULATE SIMILARITY ADD MULTIPLE-DISTRIBUTION ALARM
S34
SHOW ALARMS TO SYSTEM SUCH AS ALGORITHMIC TRADE ENGINE (OR USER)
KNOWLEDGE-EXTRACTION TARGET TO WHICH ELECTRONIC DOCUMENT IS ASSIGNED
END

FIG. 15

113a

SECOND CLUE WORD DICTIONARY

CODE	SECOND CLUE WORD	DIRECTION	INTENSITY
t001	CUE		
t002	REGARDED AS CUE		
t003	WELCOMED	POSITIVE	2
t004	NEGATIVE REACTION	NEGATIVE	2
t005	SELECTED		
t006	BUYING LEADS	POSITIVE	1

FIG. 16

NEWS ID: 4 TIME STAMP: NOVEMBER 17, 2011, 9:45

NEWS SOURCE: X NEWS AGENCY

GENRE: JAPANESE STOCKS

NEWS HEADING: Sharp decline in Chirinuruwo = negative reaction to downward revision in earnings

NEWS MAIN BODY : The share price of Chirinuruwo <1123> listed on TSE Mothers is sharply declined to 73,000 yen, down 6,400 yen from the previous business day.

NEWS ID: 5 TIME STAMP: JANUARY 28, 2011, 20:04

NEWS SOURCE: S NEWSPAPER COMPANY

GENRE: GENERAL ECONOMY

NEWS HEADLINE: AA iron cutting its profit forecast to reflect rising raw material costs and delayed price passthrough

NEWS MAIN BODY : AA iron manufacture <1152> revised its consolidated ordinary income forecast for March of 2011 to 220 billion yen, down 12% from 250 billion yen of initial forecast, on Jan 28, to reflect rising raw material costs, burden of additional costs under the influence of the deluge in country β, and delayed price passthrough of steel products. The president of the company, D-Yama E-O, said in the financial results briefing that raw material costs which have begun to rise from about November continues to rise further under the influence of the deluge in country β, and the profit for January to March would be markedly decreased as compared with the profit for October to December. The company estimation shows the ordinary profit for January to March would be 31,700 million yen, down approximately 40% from the ordinary profit for October to December. This is largely affected by a decrease in ordinary profit in the iron industry, which is the main business, to 13,900 million yen, down approximately 70% from that for October to December. Regarding the price of steel products, the president said, "the price enters an upward phase, but there is only few gains for us by March," indicating that no prospect of improvement in sales price for this fiscal year is also a reason for the downward revision in earnings.

FIG. 17

KNOWLEDGE NO.	FIRST CONCEPT	KNOWLEDGE-EXTRACTION TARGET WORD	SHARE-PRICE-FLUCTUATION ELEMENT	DIRECTION	INTENSITY
10		1123 : CHIRINURUWO	DOWNWARD REVISION IN EARNINGS	NEGATIVE	2

FIG. 18

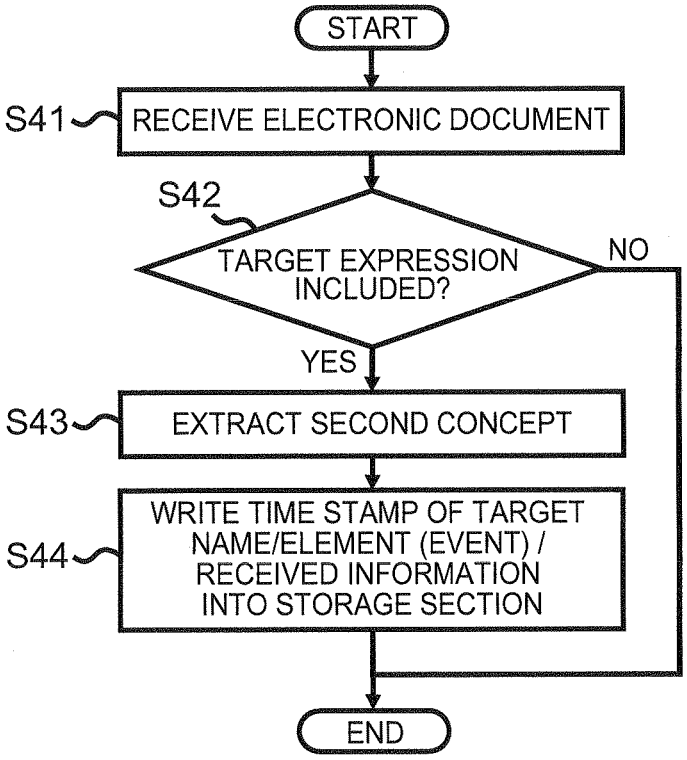

START
S41
RECEIVE ELECTRONIC DOCUMENT
S42
TARGET EXPRESSION INCLUDED?
NO
YES
S43
EXTRACT SECOND CONCEPT
S44
WRITE TIME STAMP OF TARGET NAME/ELEMENT (EVENT) / RECEIVED INFORMATION INTO STORAGE SECTION
END

FIG. 19

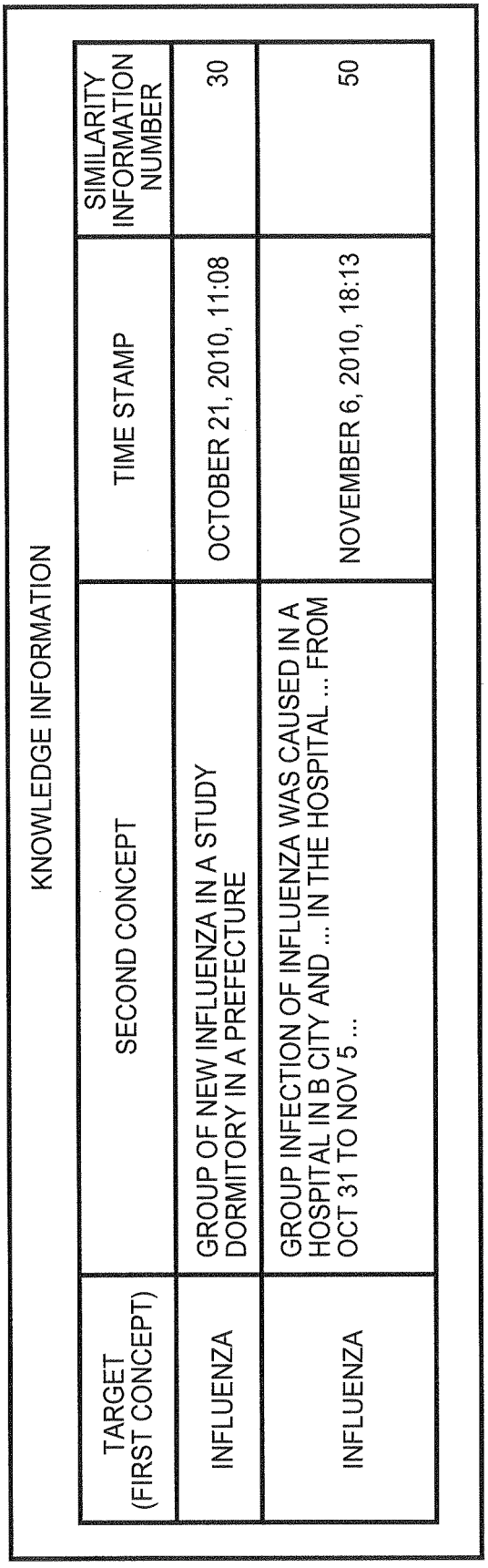

KNOWLEDGE INFORMATION
TARGET (FIRST CONCEPT)
SECOND CONCEPT
TIME STAMP
SIMILARITY INFORMATION NUMBER
INFLUENZA
GROUP OF NEW INFLUENZA IN A STUDY DORMITORY IN A PREFECTURE
OCTOBER 21, 2010, 11:08
30
INFLUENZA
GROUP INFECTION OF INFLUENZA WAS CAUSED IN A HOSPITAL IN B CITY AND ... IN THE HOSPITAL ... FROM OCT 31 TO NOV 5 ...
NOVEMBER 6, 2010, 18:13
50

FIG. 20

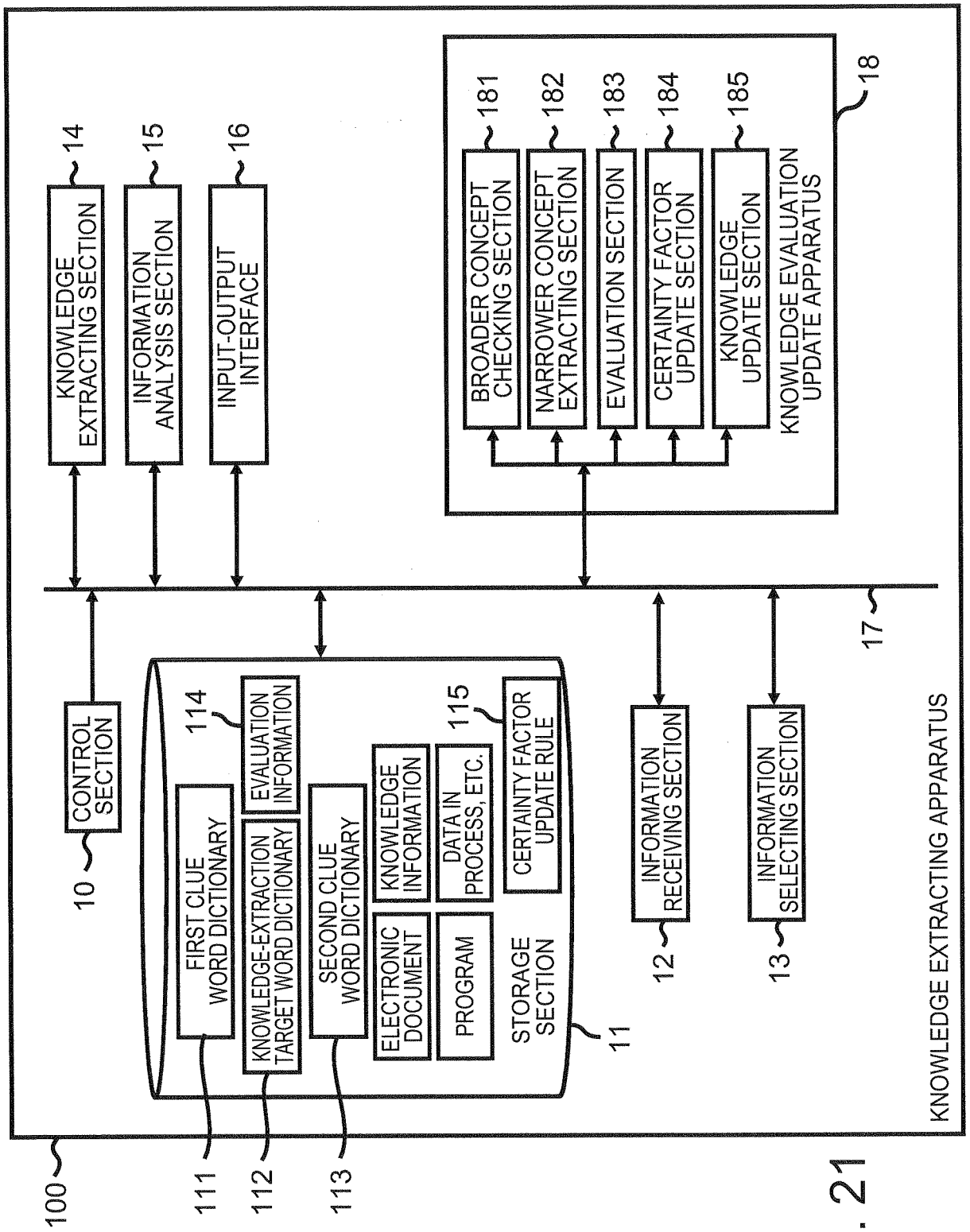

KNOWLEDGE EXTRACTING APPARATUS
100
CONTROL SECTION
10
KNOWLEDGE EXTRACTING SECTION
14
INFORMATION ANALYSIS SECTION
15
INPUT-OUTPUT INTERFACE
16
17
STORAGE SECTION
11
FIRST CLUE WORD DICTIONARY
111
KNOWLEDGE-EXTRACTION TARGET WORD DICTIONARY
112
SECOND CLUE WORD DICTIONARY
113
EVALUATION INFORMATION
114
CERTAINTY FACTOR UPDATE RULE
115
KNOWLEDGE INFORMATION
DATA IN PROCESS, ETC.
ELECTRONIC DOCUMENT
PROGRAM
INFORMATION RECEIVING SECTION
12
INFORMATION SELECTING SECTION
13
KNOWLEDGE EVALUATION UPDATE APPARATUS
18
BROADER CONCEPT CHECKING SECTION
181
NARROWER CONCEPT EXTRACTING SECTION
182
EVALUATION SECTION
183
CERTAINTY FACTOR UPDATE SECTION
184
KNOWLEDGE UPDATE SECTION
185

FIG. 21

FIRST CONCEPT	LOW-ORDER GROUP NAME	KNOWLEDGE-EXTRACTION TARGET (ISSUE)	CERTAINTY FACTOR	BUSINESS ENTRY TIMING	BUSINESS CLOSURE TIMING	CERTAINTY FACTOR UPDATING HISTORY 1	CERTAINTY FACTOR UPDATING HISTORY 2	FIRST CLUE WORD
INFLUENZA	MASK	yy BOU HOLDINGS <1033>	1.3			JANUARY 4, 2009 +0.1	DECEMBER X, 2008 +0.1	SPECIAL PROCUREMENT
INFLUENZA	MASK	zz BOU<1035>	1.1			JANUARY 4, 2009 +0.1		RELATED STOCK
INFLUENZA	DISINFECTANT/ SANITIZATION AGENT	HOHETO MEDICALS<1041>	0.6		MARCH 31, 2011	JANUARY 4, 2009 -0.1		EACH COMPANY
INFLUENZA	INFLUENZA MEDICINE	ff PHARMACEUTICAL<1042>	1	OCTOBER 19, 2007		SEPTEMBER 10, 2008 +1		RELATED
MULTIPLE DRUG RESISTANT BACTERIA	DISINFECTANT/ SANITIZATION AGENT	HOHETO MEDICALS<1041>	1.2			SEPTEMBER X, 2008 +0.1		ISSUE

FIG. 22

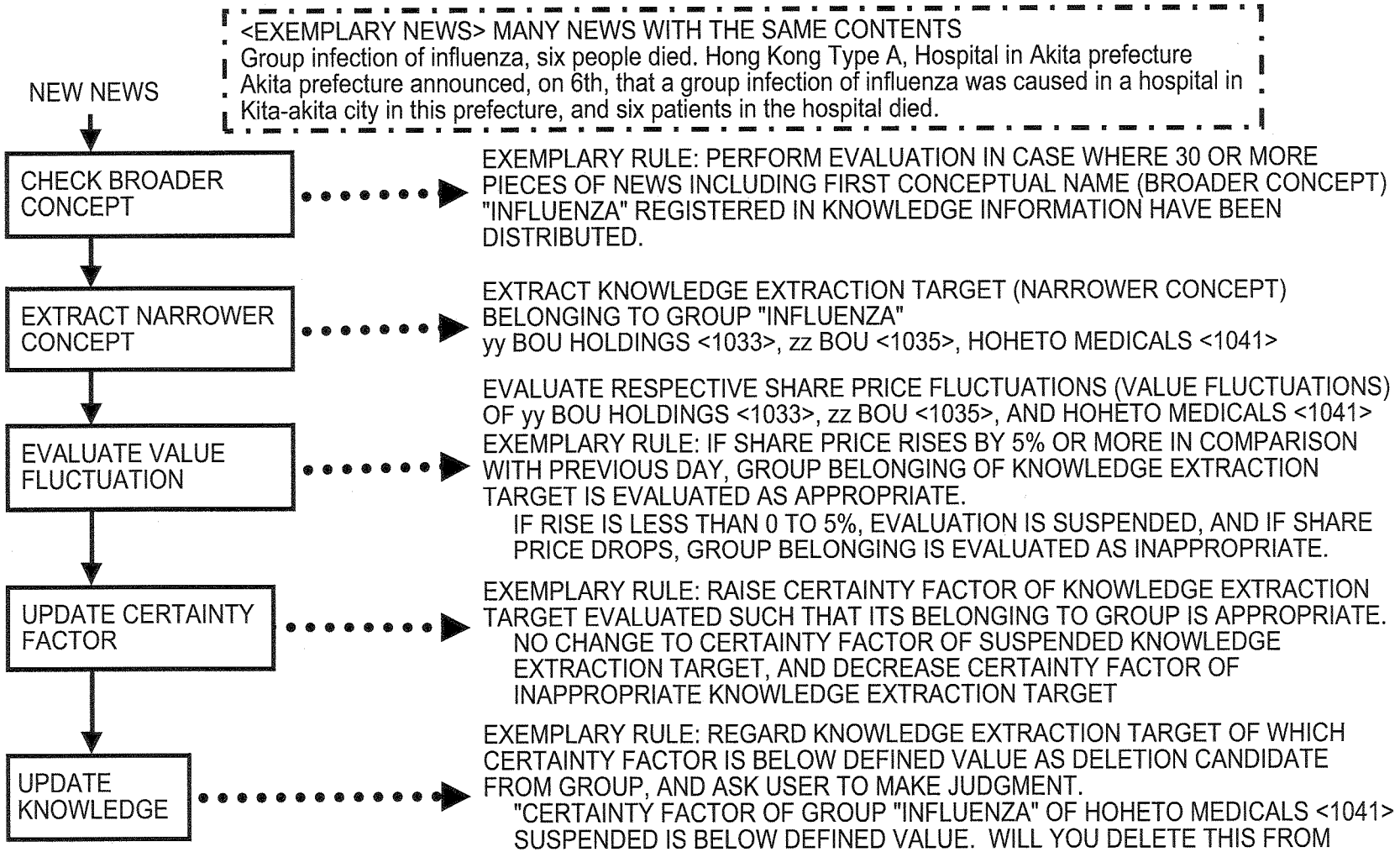

<EXEMPLARY NEWS> MANY NEWS WITH THE SAME CONTENTS
Group infection of influenza, six people died. Hong Kong Type A, Hospital in Akita prefecture
Akita prefecture announced, on 6th, that a group infection of influenza was caused in a hospital in Kita-akita city in this prefecture, and six patients in the hospital died.
NEW NEWS
CHECK BROADER CONCEPT
EXEMPLARY RULE: PERFORM EVALUATION IN CASE WHERE 30 OR MORE PIECES OF NEWS INCLUDING FIRST CONCEPTUAL NAME (BROADER CONCEPT) "INFLUENZA" REGISTERED IN KNOWLEDGE INFORMATION HAVE BEEN DISTRIBUTED.
EXTRACT NARROWER CONCEPT
EXTRACT KNOWLEDGE EXTRACTION TARGET (NARROWER CONCEPT) BELONGING TO GROUP "INFLUENZA"
yy BOU HOLDINGS <1033>, zz BOU <1035>, HOHETO MEDICALS <1041>
EVALUATE VALUE FLUCTUATION
EVALUATE RESPECTIVE SHARE PRICE FLUCTUATIONS (VALUE FLUCTUATIONS) OF yy BOU HOLDINGS <1033>, zz BOU <1035>, AND HOHETO MEDICALS <1041>
EXEMPLARY RULE: IF SHARE PRICE RISES BY 5% OR MORE IN COMPARISON WITH PREVIOUS DAY, GROUP BELONGING OF KNOWLEDGE EXTRACTION TARGET IS EVALUATED AS APPROPRIATE.
IF RISE IS LESS THAN 0 TO 5%, EVALUATION IS SUSPENDED, AND IF SHARE PRICE DROPS, GROUP BELONGING IS EVALUATED AS INAPPROPRIATE.
UPDATE CERTAINTY FACTOR
EXEMPLARY RULE: RAISE CERTAINTY FACTOR OF KNOWLEDGE EXTRACTION TARGET EVALUATED SUCH THAT ITS BELONGING TO GROUP IS APPROPRIATE.
NO CHANGE TO CERTAINTY FACTOR OF SUSPENDED KNOWLEDGE EXTRACTION TARGET, AND DECREASE CERTAINTY FACTOR OF INAPPROPRIATE KNOWLEDGE EXTRACTION TARGET
UPDATE KNOWLEDGE
EXEMPLARY RULE: REGARD KNOWLEDGE EXTRACTION TARGET OF WHICH CERTAINTY FACTOR IS BELOW DEFINED VALUE AS DELETION CANDIDATE FROM GROUP, AND ASK USER TO MAKE JUDGMENT.
"CERTAINTY FACTOR OF GROUP "INFLUENZA" OF HOHETO MEDICALS <1041> SUSPENDED IS BELOW DEFINED VALUE. WILL YOU DELETE THIS FROM A GROUP?"
WHEN USER SELECTS "YES," "HOHETO MEDICALS <1041>" IS DELETED FROM GROUP "INFLUENZA" OF KNOWLEDGE INFORMATION.

FIG. 23

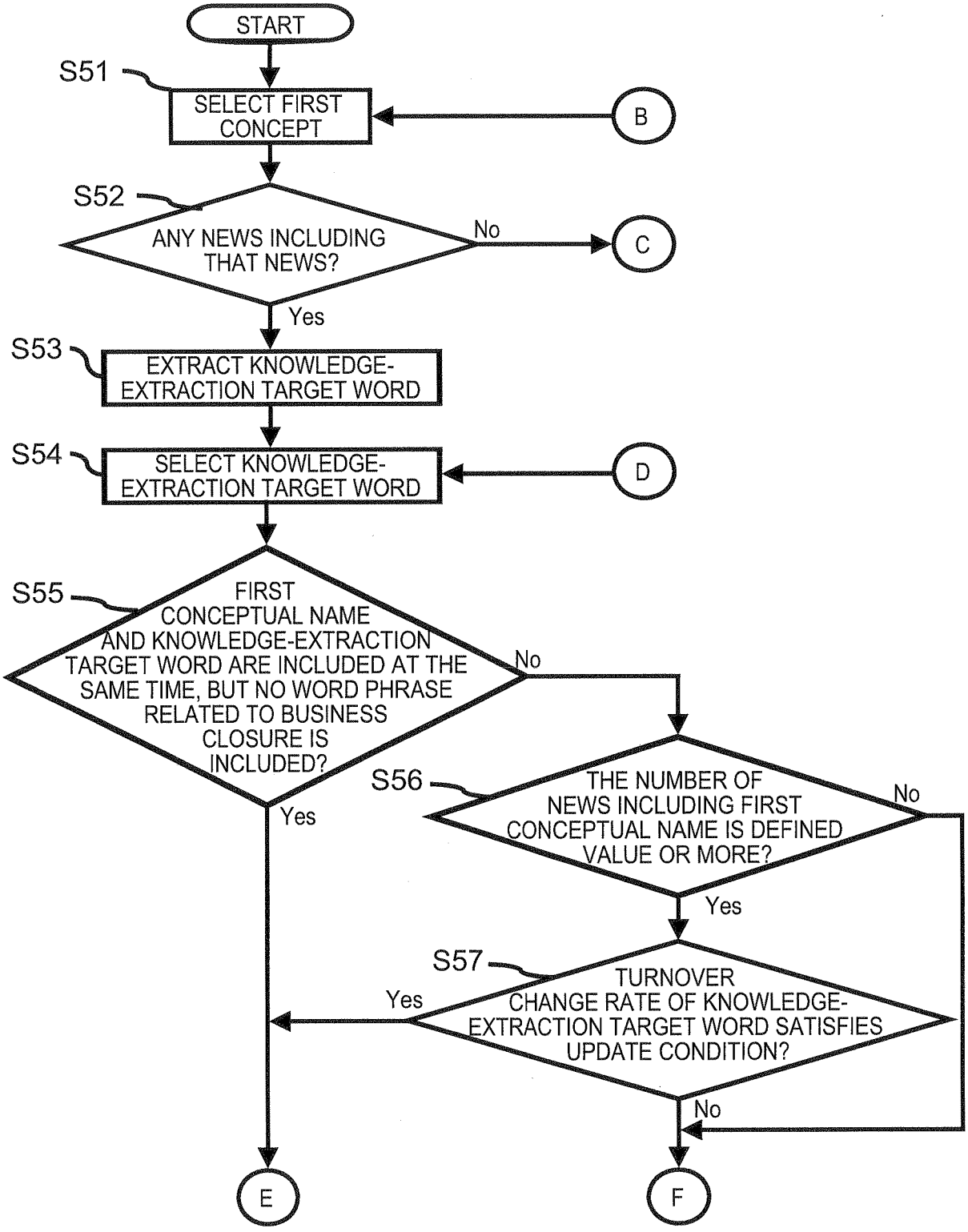

START
S51
SELECT FIRST CONCEPT
B
S52
ANY NEWS INCLUDING THAT NEWS?
No
C
Yes
S53
EXTRACT KNOWLEDGE-EXTRACTION TARGET WORD
S54
SELECT KNOWLEDGE-EXTRACTION TARGET WORD
D
S55
FIRST CONCEPTUAL NAME AND KNOWLEDGE-EXTRACTION TARGET WORD ARE INCLUDED AT THE SAME TIME, BUT NO WORD PHRASE RELATED TO BUSINESS CLOSURE IS INCLUDED?
No
Yes
S56
THE NUMBER OF NEWS INCLUDING FIRST CONCEPTUAL NAME IS DEFINED VALUE OR MORE?
No
Yes
S57
TURNOVER CHANGE RATE OF KNOWLEDGE-EXTRACTION TARGET WORD SATISFIES UPDATE CONDITION?
Yes
No
E
F

FIG. 24

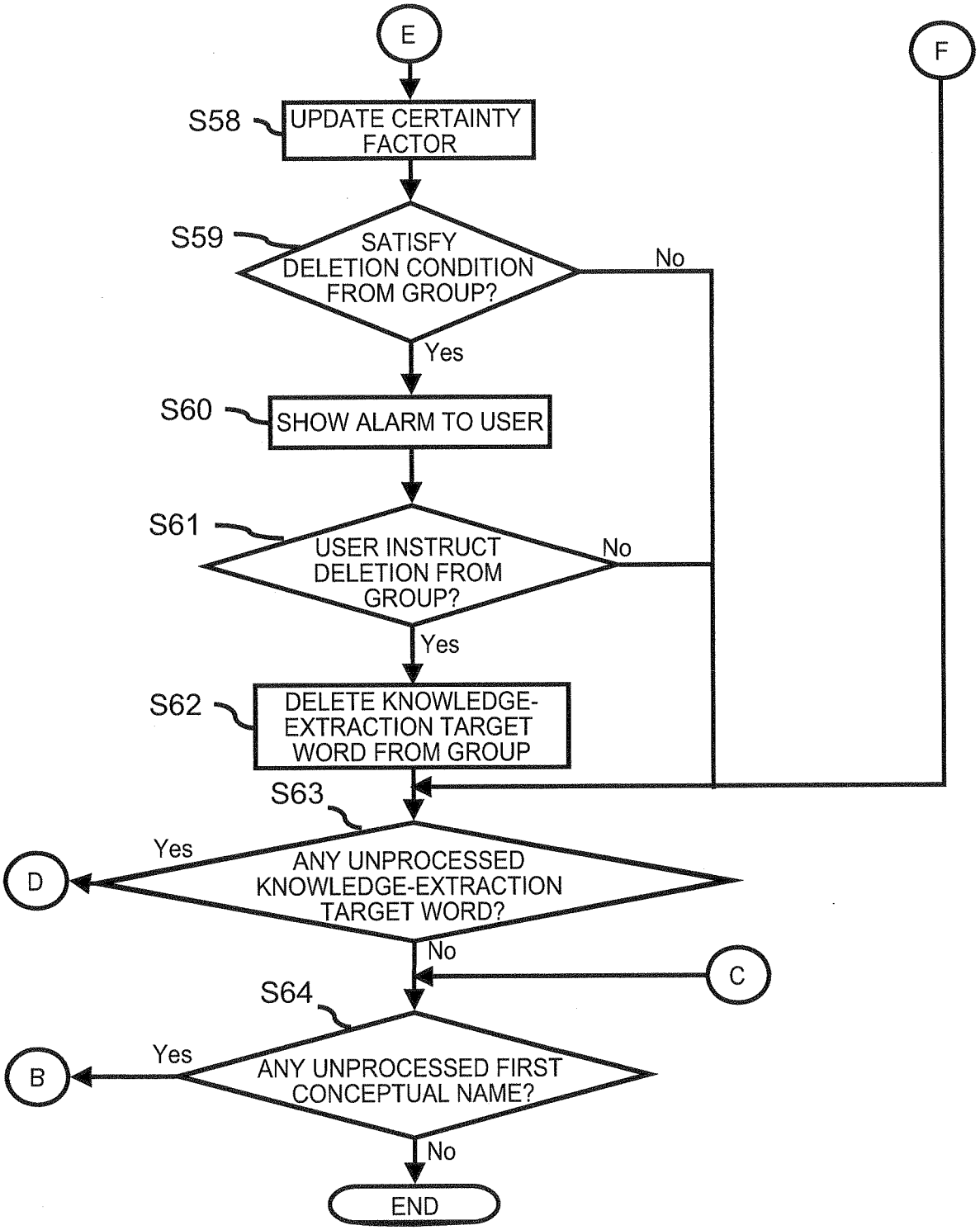

E
F
S58
UPDATE CERTAINTY FACTOR
S59
SATISFY DELETION CONDITION FROM GROUP?
No
Yes
S60
SHOW ALARM TO USER
S61
USER INSTRUCT DELETION FROM GROUP?
No
Yes
S62
DELETE KNOWLEDGE-EXTRACTION TARGET WORD FROM GROUP
S63
Yes
D
ANY UNPROCESSED KNOWLEDGE-EXTRACTION TARGET WORD?
No
C
S64
Yes
B
ANY UNPROCESSED FIRST CONCEPTUAL NAME?
No
END

FIG. 25

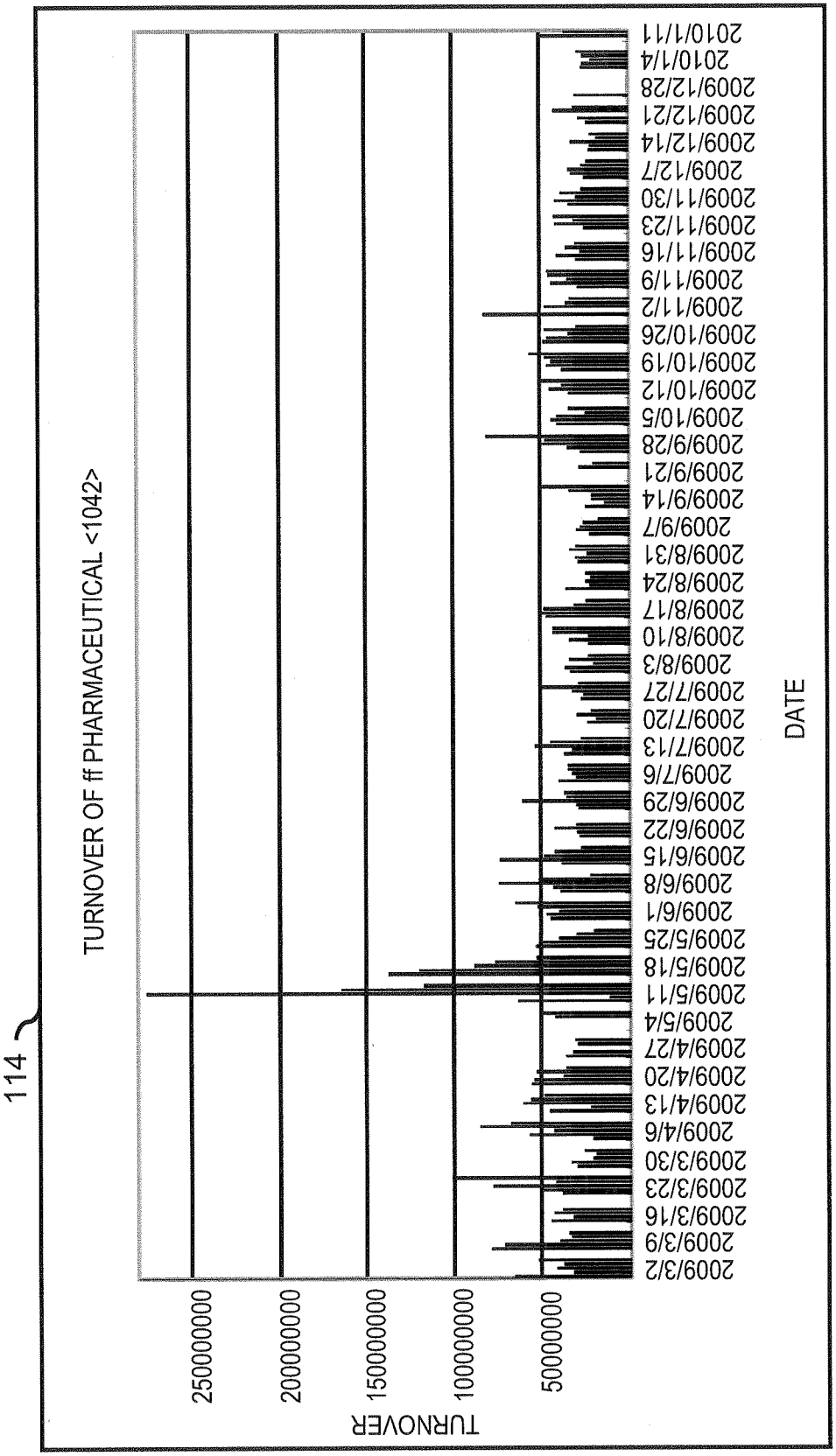

114
TURNOVER OF ff PHARMACEUTICAL <1042>
TURNOVER
250000000
200000000
150000000
100000000
50000000
DATE
2009/3/2
2009/3/9
2009/3/16
2009/3/23
2009/3/30
2009/4/6
2009/4/13
2009/4/20
2009/4/27
2009/5/4
2009/5/11
2009/5/18
2009/5/25
2009/6/1
2009/6/8
2009/6/15
2009/6/22
2009/6/29
2009/7/6
2009/7/13
2009/7/20
2009/7/27
2009/8/3
2009/8/10
2009/8/17
2009/8/24
2009/8/31
2009/9/7
2009/9/14
2009/9/21
2009/9/28
2009/10/5
2009/10/12
2009/10/19
2009/10/26
2009/11/2
2009/11/9
2009/11/16
2009/11/23
2009/11/30
2009/12/7
2009/12/14
2009/12/21
2009/12/28
2010/1/4
2010/1/11

FIG. 26

115

1	IN CASE JUDGMENT IN STEP S55 IS YES AND TURNOVER CHANGE RATE ≤ 1.1 IS SATISFIED, ADD 0.05 TO CERTAINTY FACTOR
2	IN CASE WHERE JUDGMENT IN STEP S55 IS YES AND TURNOVER CHANGE RATE > 1.1 IS SATISFIED, ADD (TURNOVER CHANGE RATE - 1.0) x 0.5 TO CERTAINTY FACTOR
3	IN CASE WHERE JUDGMENT IN STEP S56 IS YES AND TURNOVER CHANGE RATE > 1.1 IS SATISFIED, REDUCE (NEWS CHANGE RATE - TURNOVER CHANGE RATE) x 0.5 FROM CERTAINTY FACTOR
4	IN CASE WHERE JUDGMENT IN STEP S56 IS YES AND TURNOVER CHANGE RATE < 1.0 IS SATISFIED, ADD (NEWS CHANGE RATE - TURNOVER CHANGE RATE) x 0.5 TO CERTAINTY FACTOR

FIG. 27

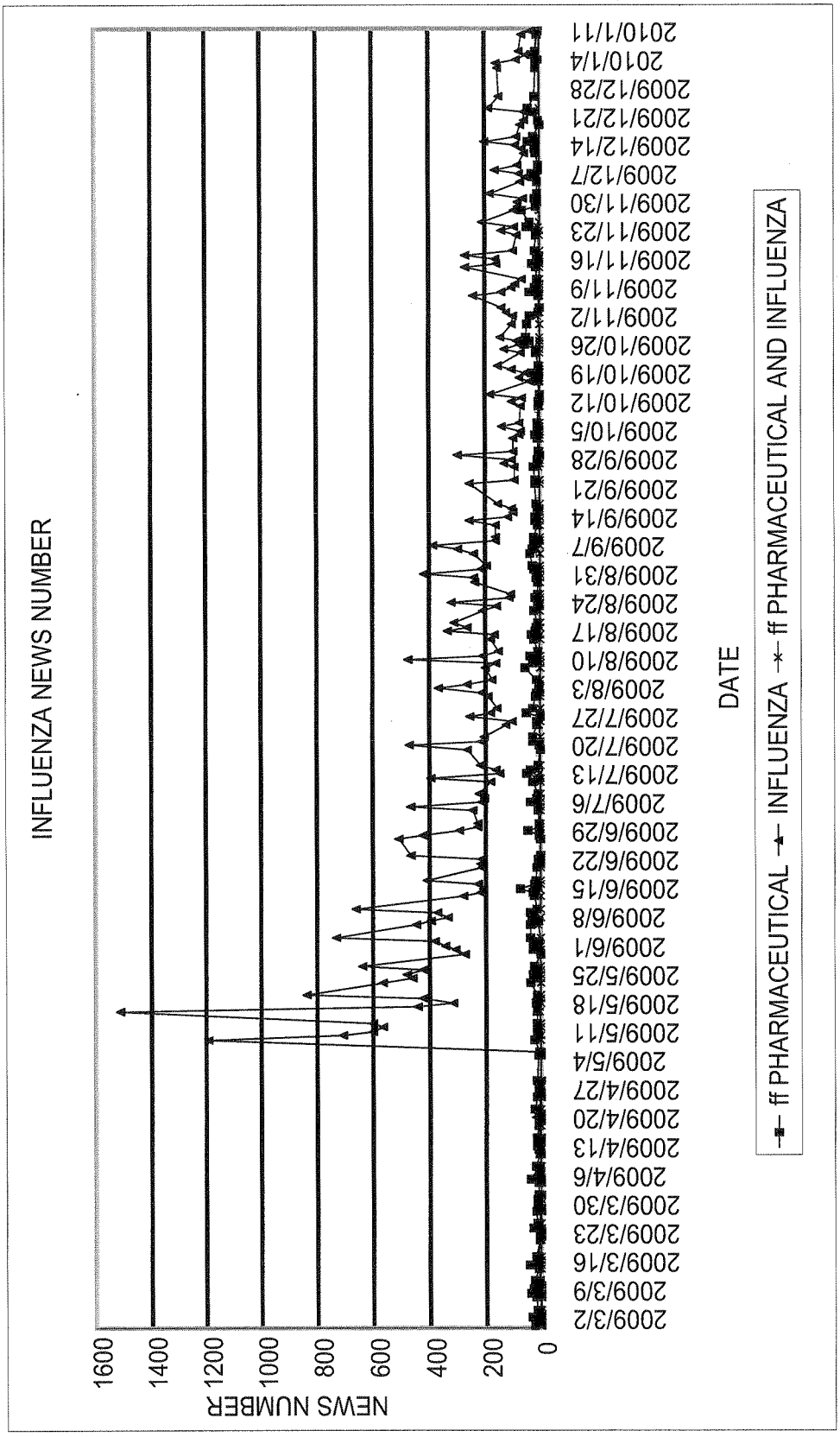

INFLUENZA NEWS NUMBER
NEWS NUMBER
1600
1400
1200
1000
800
600
400
200
0
2009/3/2
2009/3/9
2009/3/16
2009/3/23
2009/3/30
2009/4/6
2009/4/13
2009/4/20
2009/4/27
2009/5/4
2009/5/11
2009/5/18
2009/5/25
2009/6/1
2009/6/8
2009/6/15
2009/6/22
2009/6/29
2009/7/6
2009/7/13
2009/7/20
2009/7/27
2009/8/3
2009/8/10
2009/8/17
2009/8/24
2009/8/31
2009/9/7
2009/9/14
2009/9/21
2009/9/28
2009/10/5
2009/10/12
2009/10/19
2009/10/26
2009/11/2
2009/11/9
2009/11/16
2009/11/23
2009/11/30
2009/12/7
2009/12/14
2009/12/21
2009/12/28
2010/1/4
2010/1/11
DATE
ff PHARMACEUTICAL
INFLUENZA
ff PHARMACEUTICAL AND INFLUENZA

FIG. 28

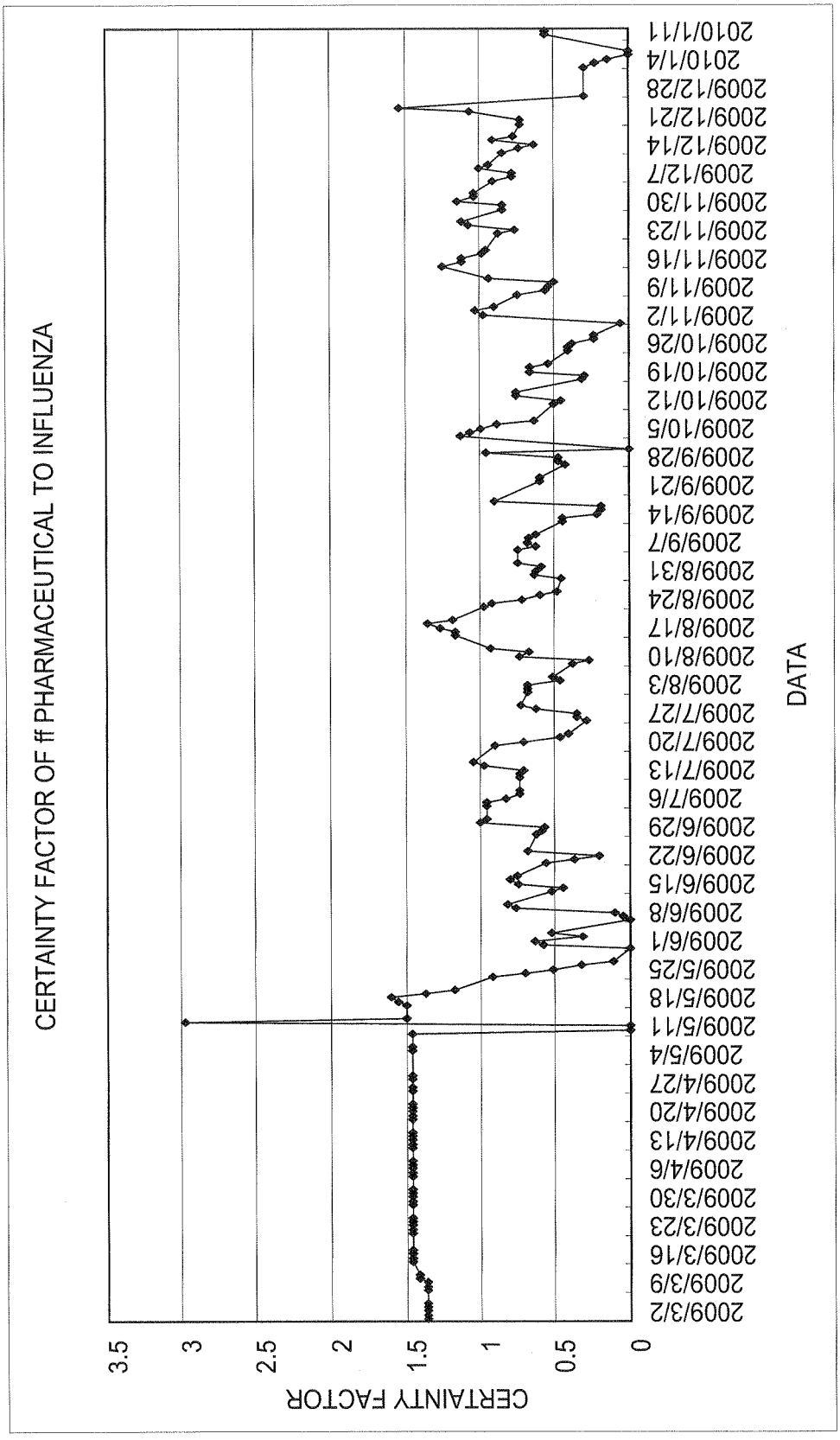

CERTAINTY FACTOR OF ff PHARMACEUTICAL TO INFLUENZA
CERTAINTY FACTOR
3.5
3
2.5
2
1.5
1
0.5
0
DATA
2009/3/2
2009/3/9
2009/3/16
2009/3/23
2009/3/30
2009/4/6
2009/4/13
2009/4/20
2009/4/27
2009/5/4
2009/5/11
2009/5/18
2009/5/25
2009/6/1
2009/6/8
2009/6/15
2009/6/22
2009/6/29
2009/7/6
2009/7/13
2009/7/20
2009/7/27
2009/8/3
2009/8/10
2009/8/17
2009/8/24
2009/8/31
2009/9/7
2009/9/14
2009/9/21
2009/9/28
2009/10/5
2009/10/12
2009/10/19
2009/10/26
2009/11/2
2009/11/9
2009/11/16
2009/11/23
2009/11/30
2009/12/7
2009/12/14
2009/12/21
2009/12/28
2010/1/4
2010/1/11

FIG. 29

CORRELATION COEFFICIENT	TARGET NEWS		
EVALUATION PERIOD	ONLY ISSUE NAME	ISSUE NAME OR GROUP NAME (WITHOUT CERTAINTY FACTOR)	ISSUE NAME OR GROUP NAME (WITH CERTAINTY FACTOR CORRECTION)
2010/8/31-2011/3/10	0.024	0.011	0.364

FIG. 30

The government allegedly decided to push forward the private diversion of Self-Defense Force airplanes, and defense-related issues such as aa heavy industries <7191>, bb heavy industries <7192>, and cc industry <7193> are firm.
Defense-related issues are selectively bought due to growing tension on the Korean Peninsula.

FIG. 31

116

KNOWLEDGE NO.	GROUP NAME	RELATED TERM
10	DEFENSE	SELF-DEFENSE, GROWING TENSION

FIG. 32

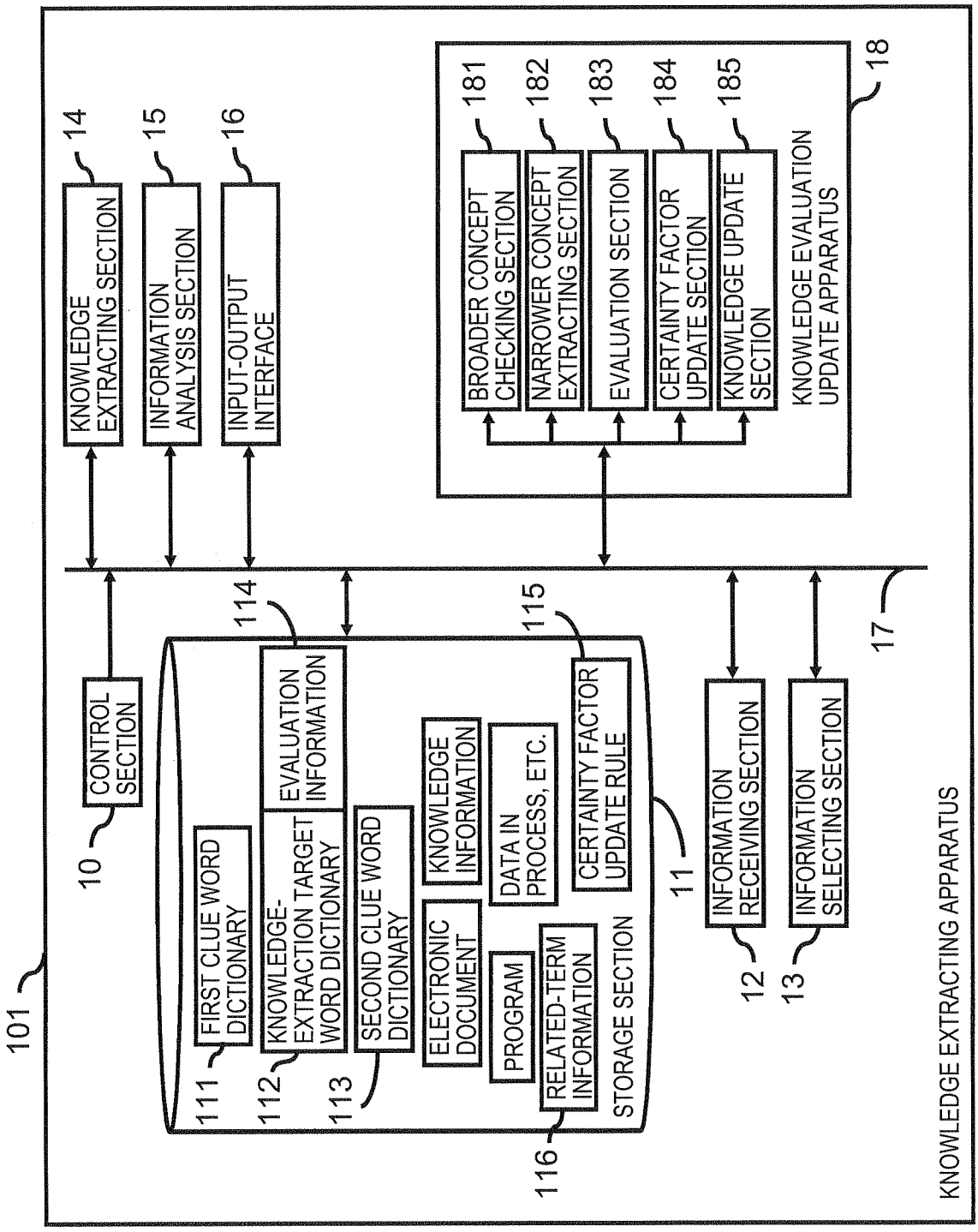

101
KNOWLEDGE EXTRACTING APPARATUS
10
CONTROL SECTION
14
KNOWLEDGE EXTRACTING SECTION
15
INFORMATION ANALYSIS SECTION
16
INPUT-OUTPUT INTERFACE
17
18
KNOWLEDGE EVALUATION UPDATE APPARATUS
181
BROADER CONCEPT CHECKING SECTION
182
NARROWER CONCEPT EXTRACTING SECTION
183
EVALUATION SECTION
184
CERTAINTY FACTOR UPDATE SECTION
185
KNOWLEDGE UPDATE SECTION
11
STORAGE SECTION
111
FIRST CLUE WORD DICTIONARY
112
KNOWLEDGE-EXTRACTION TARGET WORD DICTIONARY
113
SECOND CLUE WORD DICTIONARY
114
EVALUATION INFORMATION
115
CERTAINTY FACTOR UPDATE RULE
116
RELATED-TERM INFORMATION
PROGRAM
ELECTRONIC DOCUMENT
KNOWLEDGE INFORMATION
DATA IN PROCESS, ETC.
12
INFORMATION RECEIVING SECTION
13
INFORMATION SELECTING SECTION

FIG. 33

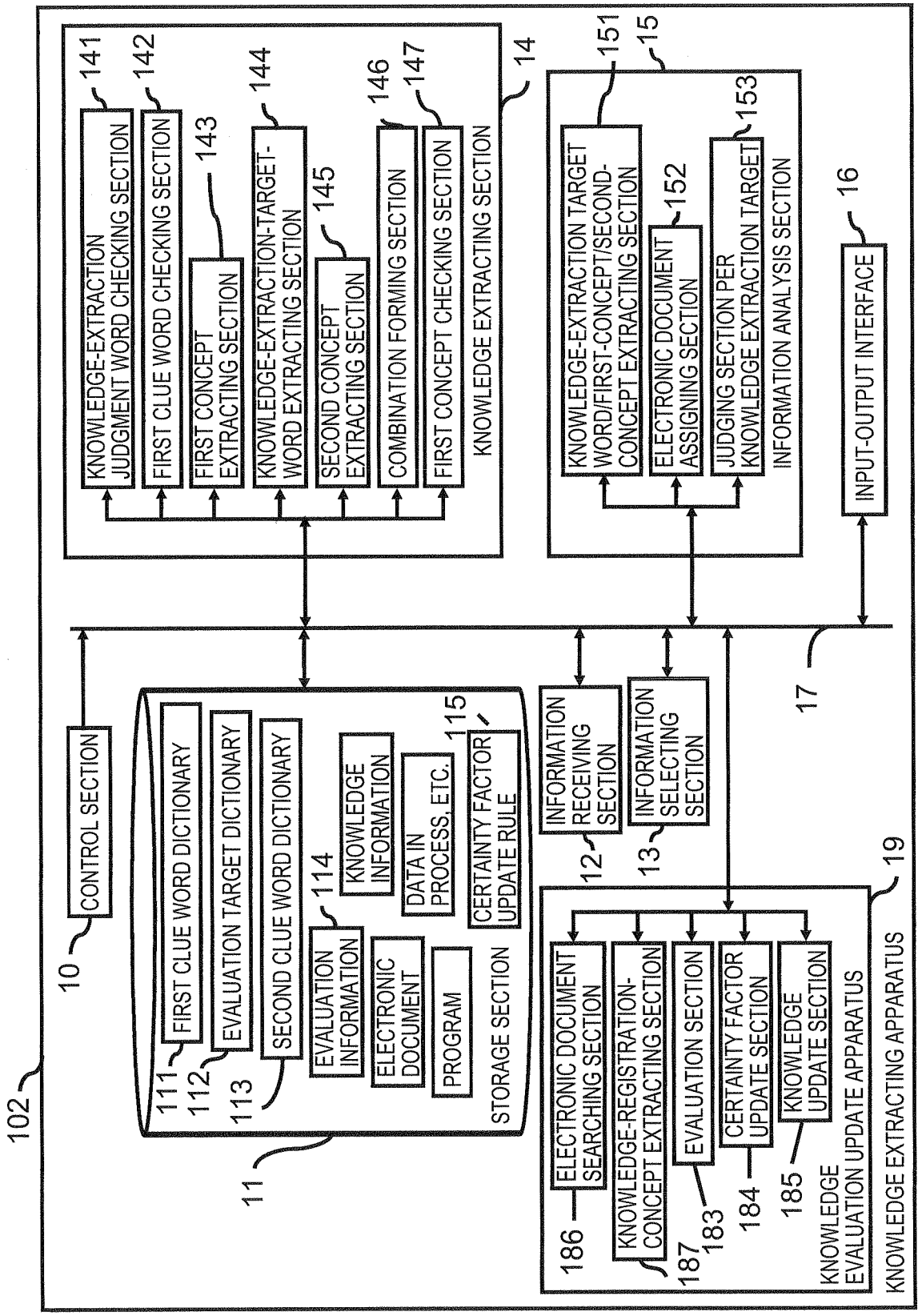

102
KNOWLEDGE EXTRACTING APPARATUS
KNOWLEDGE EVALUATION UPDATE APPARATUS
19
CONTROL SECTION
10
STORAGE SECTION
11
FIRST CLUE WORD DICTIONARY
111
EVALUATION TARGET DICTIONARY
112
SECOND CLUE WORD DICTIONARY
113
EVALUATION INFORMATION
114
ELECTRONIC DOCUMENT
PROGRAM
KNOWLEDGE INFORMATION
DATA IN PROCESS, ETC.
CERTAINTY FACTOR UPDATE RULE
115
INFORMATION RECEIVING SECTION
12
INFORMATION SELECTING SECTION
13
KNOWLEDGE EXTRACTING SECTION
14
KNOWLEDGE-EXTRACTION JUDGMENT WORD CHECKING SECTION
141
FIRST CLUE WORD CHECKING SECTION
142
FIRST CONCEPT EXTRACTING SECTION
143
KNOWLEDGE-EXTRACTION-TARGET-WORD EXTRACTING SECTION
144
SECOND CONCEPT EXTRACTING SECTION
145
COMBINATION FORMING SECTION
146
FIRST CONCEPT CHECKING SECTION
147
INFORMATION ANALYSIS SECTION
15
KNOWLEDGE-EXTRACTION TARGET WORD/FIRST-CONCEPT/SECOND-CONCEPT EXTRACTING SECTION
151
ELECTRONIC DOCUMENT ASSIGNING SECTION
152
JUDGING SECTION PER KNOWLEDGE EXTRACTION TARGET
153
17
INPUT-OUTPUT INTERFACE
16
ELECTRONIC DOCUMENT SEARCHING SECTION
186
KNOWLEDGE-REGISTRATION-CONCEPT EXTRACTING SECTION
187
EVALUATION SECTION
183
CERTAINTY FACTOR UPDATE SECTION
184
KNOWLEDGE UPDATE SECTION
185

FIG. 34

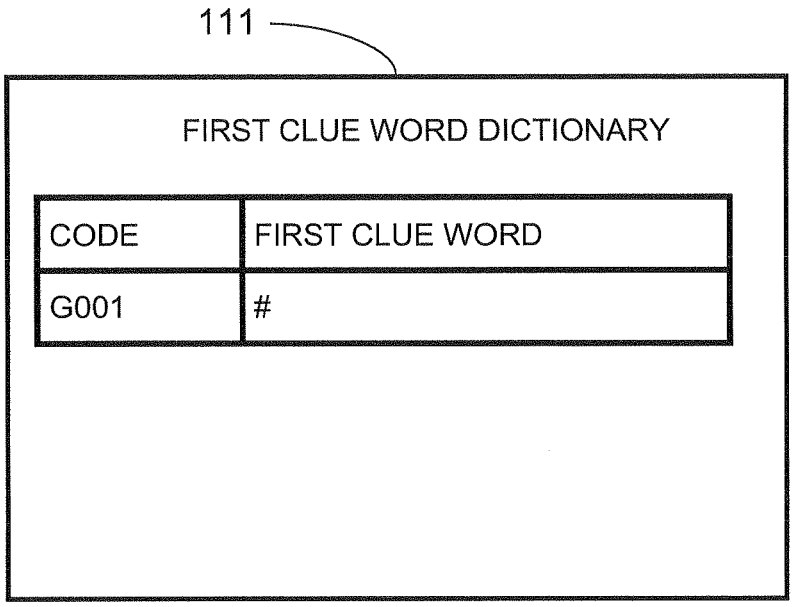


FIG. 35

112

KNOWLEDGE-EXTRACTION TARGET WORD DICTIONARY

CODE	KNOWLEDGE-EXTRACTION TARGET WORD	PROGRAM NAME	KNOWLEDGE-EXTRACTION TARGET WORD EXPRESSION
A001	ACTRESS P		ACTRESS P, P, p, M
A002	ACTOR Q		ACTOR Q, Q, q
A003	COAT OF OFFICIAL TITLE M	DRAMA A	COAT OF M
A004	LINES OF OFFICIAL TITLE M	DRAMA A	LINES OF M
B001	OFFICIAL TITLE M	DRAMA A	m
B001	OFFICIAL TITLE M	DRAMA A	Mr. m

FIG. 36

113a

SECOND CLUE WORD DICTIONARY

CODE	SECOND CLUE WORD	DIRECTION	INTENSITY
t001	(;__;)	WEEP	1
t002	(T_T)	WEEP	2
t003	(ToT)	WEEP	2
t004	(*__*)	SURPRISE	1
t005	(￣□￣)	SURPRISE	1
t006	(°□°)	SURPRISE	1
t007	(°Д°)	SURPRISE	1
t008	(^__^;)	IMPATIENCE	1
t009	(￣□￣;)	IMPATIENCE	1
t010	(°Д°;)	IMPATIENCE	2
t011	(^_^)	LAUGH	1
t012	(^∇^)	LAUGH	2
t013	(^O^)	LAUGH	2
t014	(^O^)	LAUGH	2
t015	(￣ω￣)	LAUGH	1
t016	(´∀`)	LAUGH	1
t017	(▪∀▪)	LAUGH	1
t018	ww	LAUGH	1
t019	www	LAUGH	2
t020	wwww	LAUGH	3
t021	(`Д´)	ANGER	1
t022	(`へ´)	ANGER	1

FIG. 37

ARTICLE ID	TIME STAMP	USER	BACKGROUND INFORMATION	MAIN BODY
1	2011/11/28 20:19	aaa		Q's performance is too stink for a serious scene LOLww #drama B
2	2011/11/28 22:11	bbb		m is too amazing LOLwww #drama A
3	2011/11/28 22:12	ccc		m is just too good at everything LOLww #drama A
4	2011/11/28 22:12	ddd		m is just too good at everything LOLww #drama A
5	2011/11/28 22:12	eee	ccc	m is too terrific LOLwww #drama A
6	2011/11/28 22:20	fff		m is too good at playing volleyball. LOL. It's been a while since I played volleyball.
7	2011/11/28 22:22	ggg		m is awesome ww #drama A
8	2011/11/28 22:34	hhh		m is awesome(;_;) #drama A

FIG. 38

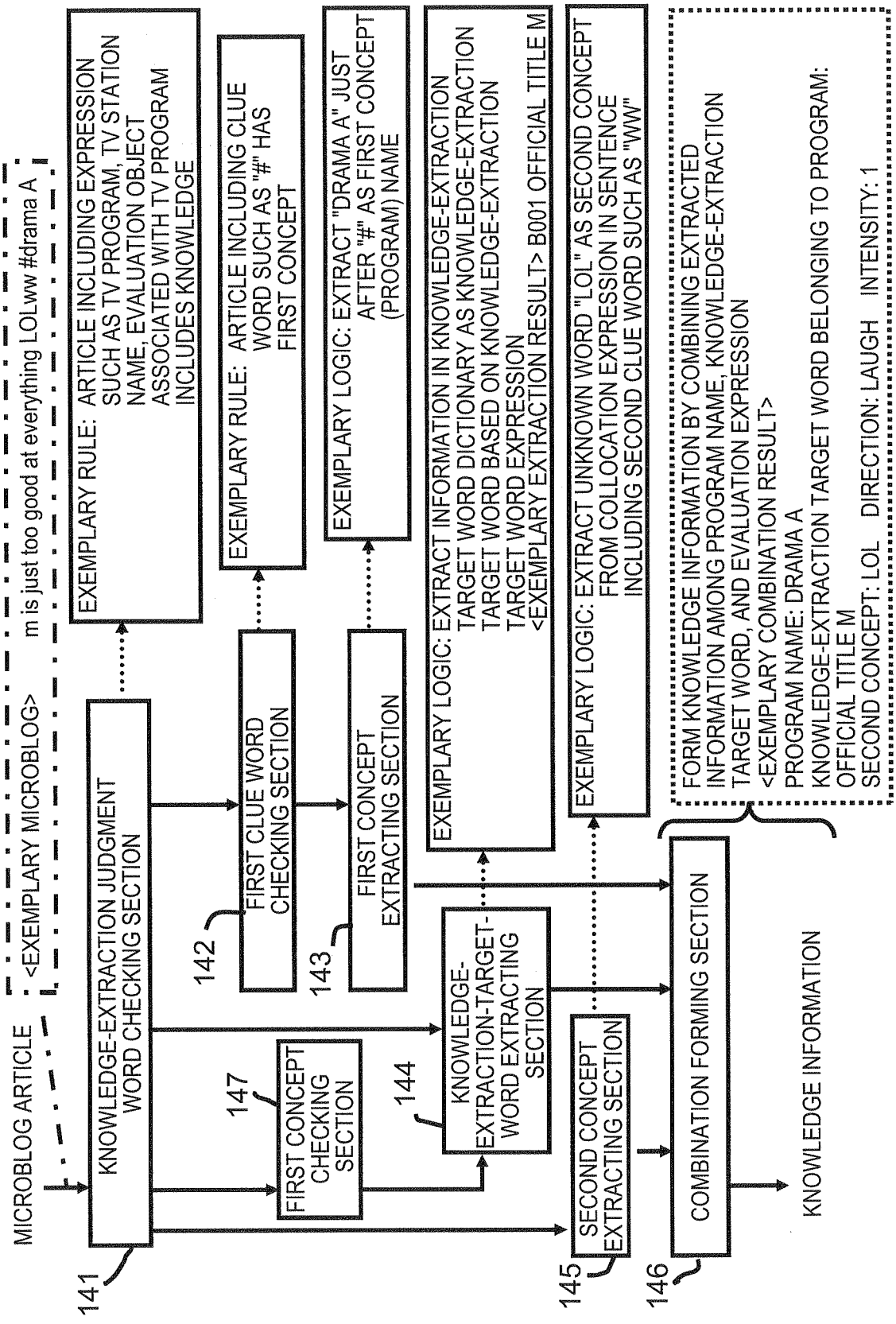

MICROBLOG ARTICLE
<EXEMPLARY MICROBLOG>
m is just too good at everything LOLww #drama A
141
KNOWLEDGE-EXTRACTION JUDGMENT WORD CHECKING SECTION
EXEMPLARY RULE: ARTICLE INCLUDING EXPRESSION SUCH AS TV PROGRAM, TV STATION NAME, EVALUATION OBJECT ASSOCIATED WITH TV PROGRAM INCLUDES KNOWLEDGE
142
FIRST CLUE WORD CHECKING SECTION
EXEMPLARY RULE: ARTICLE INCLUDING CLUE WORD SUCH AS "#" HAS FIRST CONCEPT
143
FIRST CONCEPT EXTRACTING SECTION
EXEMPLARY LOGIC: EXTRACT "DRAMA A" JUST AFTER "#" AS FIRST CONCEPT (PROGRAM) NAME
147
FIRST CONCEPT CHECKING SECTION
144
KNOWLEDGE-EXTRACTION-TARGET-WORD EXTRACTING SECTION
EXEMPLARY LOGIC: EXTRACT INFORMATION IN KNOWLEDGE-EXTRACTION TARGET WORD DICTIONARY AS KNOWLEDGE-EXTRACTION TARGET WORD BASED ON KNOWLEDGE-EXTRACTION TARGET WORD EXPRESSION <EXEMPLARY EXTRACTION RESULT> B001 OFFICIAL TITLE M
145
SECOND CONCEPT EXTRACTING SECTION
EXEMPLARY LOGIC: EXTRACT UNKNOWN WORD "LOL" AS SECOND CONCEPT FROM COLLOCATION EXPRESSION IN SENTENCE INCLUDING SECOND CLUE WORD SUCH AS "WW"
146
COMBINATION FORMING SECTION
FORM KNOWLEDGE INFORMATION BY COMBINING EXTRACTED INFORMATION AMONG PROGRAM NAME, KNOWLEDGE-EXTRACTION TARGET WORD, AND EVALUATION EXPRESSION
<EXEMPLARY COMBINATION RESULT>
PROGRAM NAME: DRAMA A
KNOWLEDGE-EXTRACTION TARGET WORD BELONGING TO PROGRAM: OFFICIAL TITLE M
SECOND CONCEPT: LOL DIRECTION: LAUGH INTENSITY: 1
KNOWLEDGE INFORMATION

FIG. 39

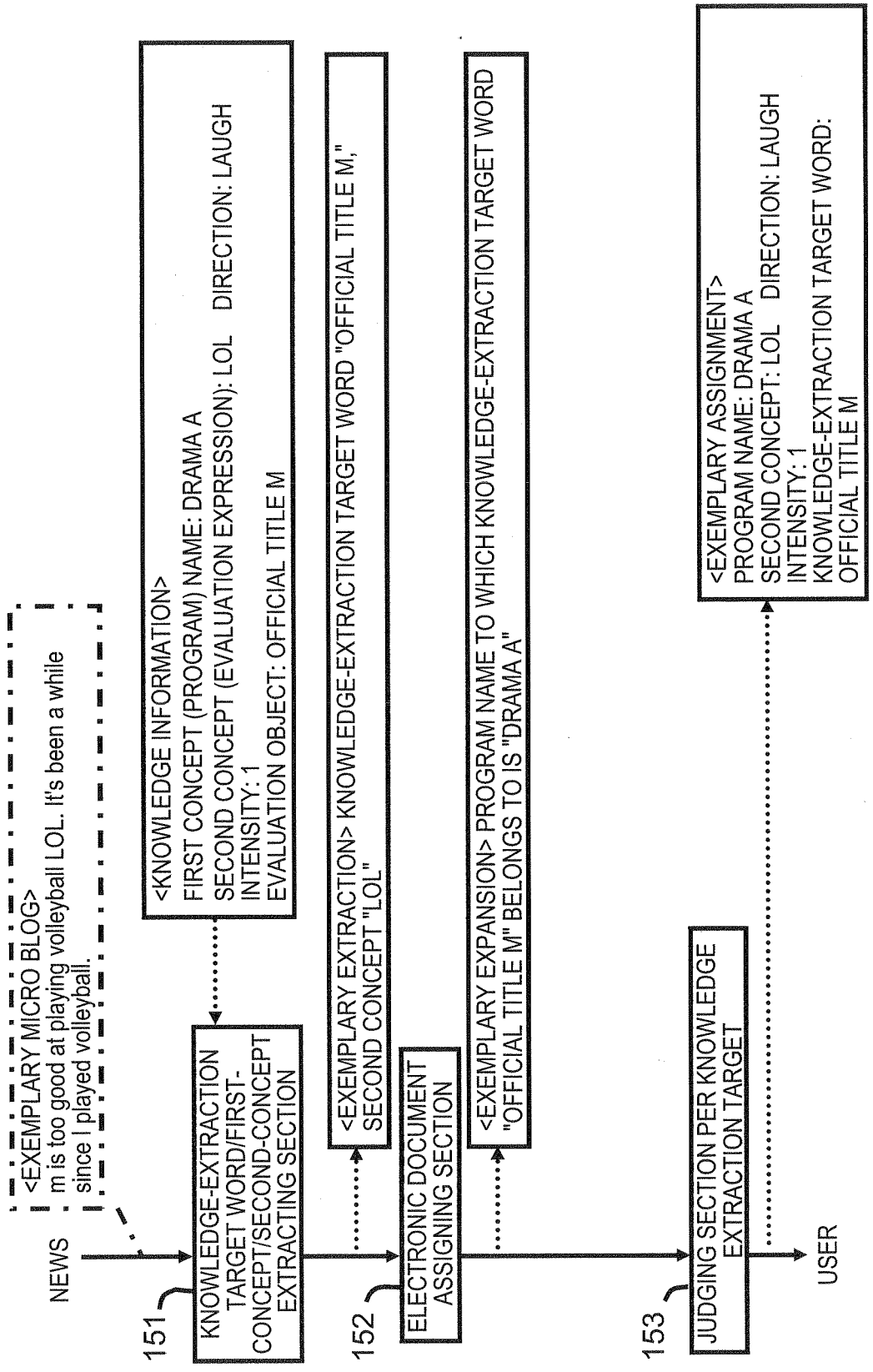

NEWS
<EXEMPLARY MICRO BLOG>
m is too good at playing volleyball LOL. It's been a while since I played volleyball.
151
KNOWLEDGE-EXTRACTION TARGET WORD/FIRST-CONCEPT/SECOND-CONCEPT EXTRACTING SECTION
<KNOWLEDGE INFORMATION>
FIRST CONCEPT (PROGRAM) NAME: DRAMA A
SECOND CONCEPT (EVALUATION EXPRESSION): LOL DIRECTION: LAUGH
INTENSITY: 1
EVALUATION OBJECT: OFFICIAL TITLE M
<EXEMPLARY EXTRACTION> KNOWLEDGE-EXTRACTION TARGET WORD "OFFICIAL TITLE M,"
SECOND CONCEPT "LOL"
152
ELECTRONIC DOCUMENT ASSIGNING SECTION
<EXEMPLARY EXPANSION> PROGRAM NAME TO WHICH KNOWLEDGE-EXTRACTION TARGET WORD "OFFICIAL TITLE M" BELONGS TO IS "DRAMA A"
153
JUDGING SECTION PER KNOWLEDGE EXTRACTION TARGET
<EXEMPLARY ASSIGNMENT>
PROGRAM NAME: DRAMA A
SECOND CONCEPT: LOL DIRECTION: LAUGH
INTENSITY: 1
KNOWLEDGE-EXTRACTION TARGET WORD: OFFICIAL TITLE M
USER

FIG. 40

KNOWLEDGE INFORMATION

TARGET	EVENT	TIME STAMP	SIMILARITY INFORMATION
OFFICIAL TITLE V	GOOD AT EVERYTHING	2011/11/28 22:12	30
OFFICIAL TITLE V	VOLLEYBALL	2011/11/28 22:20	10

FIG. 41

FIRST CLUE WORD	SECOND CLUE WORD	KNOWLEDGE-EXTRACTION TARGET WORD	CERTAINTY FACTOR	CERTAINTY FACTOR UPDATING HISTORY	CERTAINTY FACTOR UPDATING HISTORY
DRAMA A	LOL	OFFICIAL TITLE M	0.3	NOVEMBER 28, 2011 -0.1	
DRAMA B	LOL	ACTOR Q	1.5	NOVEMBER 28, 2012 +0.2	

FIG. 42